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EFFECTS OF VERY EARLY SERUM TREATMENT IN PNEUMOCOCCUS TYPE I PNEUMONIA

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It is a fundamental principle in all serum therapy that to obtain the best results the serum must be given early in the disease. This statement holds true regardless of whether one is using antitoxic or antibacterial serum. During the past decade there have appeared in American and British medical literature a goodly number of reports on the successful use of refined and concentrated antipneumococcus serum in the treatment of pneumococcic pneumonia. The majority of these reports have dealt with pneumococcus type I infections. More recently, however, a number of articles have appeared, reporting favorable results with serum in the treatment of other types of pneumococcic pneumonia. Promising figures have been submitted for the serum treatment of types II, V, VII, VIII and XIV. The most significant feature of these reports on serotherapy is that they are all, without exception, favorable. I cannot recall a single skeptical article since the introduction of Felton's concentrated serum. Many of the authors, after reporting their results in a series of cases studied, have given mortality figures for cases treated during the first three or four days of the disease. In every case the mortality rates for cases treated early are distinctly lower than the death rate for the whole series, and much lower than the death rate for cases treated late in the disease.

It occurred to me that an analysis of a series of cases of pneumococcus type I pneumonia in which serum was administered unusually early in the course of the disease, that is, during the first twenty-four hours of the infection, might throw some interesting light on the ultimate possibilities of serum therapy in this type of pneumonia. Not so very long ago I made the statement that it was doubtful whether the death rate for type I pneumonia could be reduced below 10 per cent by means of serum therapy. This statement was based on the observation that so many patients with pneumonia suffer from a previously depleted condition, due to influenza, childbirth, a surgical operation or some chronic systemic disease, such as tuberculosis, diabetes or cancer. By way of contrast, I had in mind diseases like diphtheria and scarlet fever, which occur almost exclusively in healthy children and the physician has only one medical problem, namely the acute infection, to combat. However, figures which I shall presently show indicate that I may have been too pessimistic in my prognostications.

I will now consider briefly the various phenomena which manifest themselves when concentrated antipneumococcus type I serum is administered quite early in type I pneumonia. A very frequent and happy manifestation of early serum treatment of type I pneumonia is a complete and dramatic abortion of the infection. The patient, from having been acutely ill, with a high temperature, pleuritic pain, marked restlessness, and paroxysms of coughing, suddenly finds himself well (chart 1). The temperature is normal or subnormal. The pulse and respiration return to their usual rates. Pleuritic pain disappears and the cough is ameliorated. From being a serious, exhausting infection of seven or eight days' duration, the disease is reduced almost to the status of an influenzal attack. I believe that these instances of dramatic termination are explained by the fact that in the early phases of the disease, before frank consolidation has developed to its maximum intensity, the specific antibodies of the serum are capable of so affecting the pneumococci in the pulmonary lesion as to bring about a rapid cessation of the infection. Once consolidation is complete, the circulation through the affected lobe is seriously impaired. After this stage has been reached, usually by the third or fourth day of the disease, the chief effect of the injected immune bodies is to confine the pneumococci to the pulmonary lesion and to prevent extension of the pathologic process. Under the latter circumstances the actual termination of the disease is brought about by the process of natural recovery. This point of view is well supported in some recent studies by Robertson and his co-workers.[1]

The striking subjective improvement in these patients results, of course, from the sudden elimination of toxemia. The toxemia of pneumonia is a problem that is not thoroughly understood. Coca [2] has demonstrated in filtrates of pneumococcus type I cultures a toxin which, when injected into young children, causes a rise of temperature, which may reach 105 F. in the more susceptible subjects. On the other hand, patients convalescing from pneumococcic pneumonia were found immune to the type I toxin. According to Coca, the toxin appears to be type specific but is not the type-specific polysaccharide. If Coca's studies are corroborated, it may be assumed that antipneumococcus serum, in addition to neutralizing the type-specific polysaccharide, neutralizes the type-specific toxin as

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Read before the International Society for Microbiology at the second International Congress for Microbiology, London, England, July 29, 1936.

1. Robertson, O. H.; Graeser, J. B.; Coggeshall, L. T., and Sia, R. H. P.: The Relation of Circulating Antipneumococcal Immune Substances to the Course of Lobar Pneumonia: III. Injected Immune Substances (Antipneumococcus Serum, Types I and II), J. Clin. Investigation **13**: 649 (July) 1934.

2. Coca, A. F.: A Study of the Pneumococcus Toxins, J. Immunol. **30**: 1 (Jan.) 1936.

well. Certainly the crisis that accompanies abortive pneumonia, often on the second or third day of the disease, is just as dramatic as the natural crisis which occurs on the seventh or eighth day in those who receive no serum. All physicians can recall acutely ill pneumonia patients who, on the morning after receiving serum, insist on telephoning their offices or reading the morning newspaper.

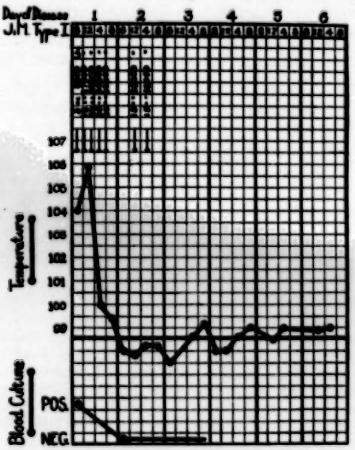

Chart 1.—Septic type I pneumonia treated on first day of disease with concentrated antipneumococcus serum. Upper line, temperature; lower line, bacteremia.

One of the most interesting methods of studying the effect of antipneumococcus serum on the pneumonic process is to take daily roentgenograms during the active period of the disease. By this method of study it can be shown that the prompt and adequate administration of serum usually limits the infection to one lobe. If serum is given very early, the area of infection in the involved lobe is sharply demarcated and rapidly fades out. When serum is started a little later, from twenty-four to forty-eight hours after onset, it often happens, as pointed out by several observers, that though an immediate crisis is induced, the area of consolidation in the involved lobe increases somewhat in size and may finally involve the entire lobe.

Numerous writers have stressed the value of antipneumococcus serum in preventing or checking bacteremia. Even when serum is given late in the disease, a heavy blood stream infection is often overcome, though a fatal termination may ensue. When bacteremia develops early in the disease, it is promptly eliminated by serum therapy. This is well illustrated in charts 1 and 3.

Chart 2 illustrates the effect of early serum therapy on bacteremia in two monkeys that were given lethal doses of pneumococcus type I culture intratracheally.[3] Both animals rapidly developed the classic signs of lobar pneumonia accompanied by bacteremia. Pneumococci promptly disappeared from the blood stream after the first injection of type I antipneumococcus serum.

The mechanism of this phenomenon is fairly well understood. The pneumococci, apparently, are agglutinated by the serum and are filtered out of the blood as it passes through the liver and spleen.

One of the earliest reactions to pneumococcic infection of the lungs is a leukocytosis, preceded in some cases by a fleeting leukopenia. This leukocytosis is due almost entirely to an increase in the number of polymorphonuclear leukocytes. In man the total count is usually between 15,000 and 25,000 with the polymorphonuclears ranging from 80 to 90 per cent. In exceptional cases the leukopenia persists, while in still others the count may go to 40,000 or more. In experimental animals, the same leukocytic response is observed. In monkeys this leukocytic response is sometimes quite marked. (This is well illustrated in chart 2.) Schilling counts reveal a sharp increase in the percentage of immature white cells in the blood. When antipneumococcus serum is administered early in the disease and localizes the pneumococcic infection in the lung, there is usually a prompt drop in the polymorphonuclears. With this drop there is an accompanying fall in the percentage of immature cells and a sharp increase in the number of monocytes.

Dochez [4] showed that at the time of the natural crisis in pneumonia the so-called protective bodies first make their appearance in the circulating blood. In numerous instances during studies at Bellevue Hospital, the prompt appearance of protective bodies in the serum of pneumonia patients who had been early and adequately treated with serum has been demonstrated

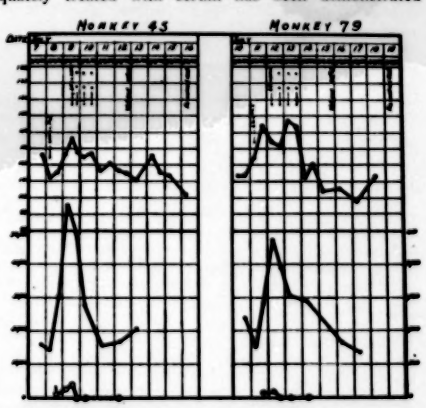

Chart 2.—Abortive type I pneumonia in monkeys, produced by early and intensive serum therapy. Upper solid line, temperature; lower solid line, leukocytes; broken line, bacteremia.

(chart 3). Bullowa [5] has demonstrated homologous agglutinins in the blood of pneumonia patients after treatment with specific serum and has made practical use of this test for determining when the patient has had a sufficient quantity of serum. The precipitins run

3. Cecil, R. L., and Blake, F. G.: Studies on Experimental Pneumonia: VII. Treatment of Experimental Pneumococcus Type I Pneumonia in Monkeys with Type I Antipneumococcus Serum, J. Exper. Med. **33**: 1 (July) 1920.

4. Dochez, A. R.: The Presence of Protective Substances in Human Serum During Lobar Pneumonia, J. Exper. Med. **16**: 665, 1912.

5. Bullowa, J. G. M.: The Hospital Management of the Pneumonias, Bull. Lederle Laboratories **5**, No. 1, February 1935.

parallel with the agglutinins and have the same significance. Protective bodies, agglutinins and precipitins all have a similar connotation, indicating that, so far as humoral immunity is concerned, the patient has obtained control of the infection.

Tillett and Francis [6] were the first to show that when pneumococcus polysaccharides are injected intradermally into patients who are convalescing from pneumonia they induce a cutaneous reaction in those infected with the homologous type of pneumococcus. The character of this reaction is of the wheal or erythema type. The patient's capacity to react to the homologous polysaccharide is intimately associated with recovery and with the presence of type-specific antibodies in the circulating blood.

TABLE 1.—*Summary of Cases of Type I Pneumonia in Which Serum Was Administered During First Twenty-Four Hours of Disease*

Number of patients	37
Died	2 (5.4%)
Average age	36 years
Average duration	4.7 days
Average amount of serum	181 thousand units
Lobes involved: 1 lobe	78.4%
2 lobes	21.6%
Complications: Empyema	0
Acute parotitis	1
Other complications	0

TABLE 2.—*Mortality Rate for 104 Cases of Type I Pneumonia in Which Serum Was Administered During First Twenty-Four Hours of Disease*

Authors	Cases	Deaths	Per Cent
Cecil	37	2	5.4
Bullowa	13	0	0.0
Heffron*	87	5	5.7
Rogers*	23	1	4.3
Total	160	8	5.0
All serum†	1,494	234	15.7
No serum†	565	190	33.6

* The author is indebted to Dr. Roderick Heffron and Dr. Edward R. Rogers for permission to include their unpublished figures on type I pneumonia in this table.
† Cases collected from various authors.

Francis [7] has recently shown that the polysaccharide skin test can be made use of as a valuable guide in serum therapy. In the opinion of Francis a positive skin test inevitably denotes that recovery has begun. When negative, it indicates the need of further serum therapy. Francis believes that the mechanism of the positive skin test is closely related to that operative in recovery from pneumonia and is apparently a resultant of antibody and tissue activity. In the illustrative charts presented by Francis, the appearance of a positive skin reaction was usually but not always coincidental with the appearance of specific agglutinins in the circulating blood. Both of these responses were closely associated with the critical fall in temperature and other evidences of recovery. Abernethy [8] has confirmed the value of the polysaccharide skin test in controlling serum therapy. He found that approximately 200,000 units was the amount required in treating the average uncomplicated case of type I pneumonia.

In most case reports on the effect of treatment of type I pneumonia with antipneumococcus serum, the death rate for patients treated during the first three or four days of the disease has averaged 10 per cent; in other words, a reduction to about one-third the standard death rate (33 per cent). The opportunity to give serum to a patient with type I pneumonia during the first twenty-four hours of the disease does not often present itself. This is most unfortunate, for, as I shall presently show, the results obtained by such very early treatment are truly spectacular. With the rapid typing methods now in vogue, there is no reason why more pneumonia patients should not receive early therapy. In order to determine more accurately the effects of very early serum treatment, I have collected a series of 160 cases of type I pneumonia in which concentrated type I serum was administered during the first twenty-four hours of the disease. Thirty-seven of these cases are from my own records. The remainder have been collected from the records of Bullowa,[5] Heffron [9] and Rogers.[10] In table 1, I have summarized the data obtained from my own thirty-seven cases. The average age in this series was 36; the average total dose of serum, 181,000 units; the average duration of fever for patients who recovered was 4.7 days. The latter figure is quite significant when it is recalled that the average duration for type I pneumonias in cases in which no serum is administered is seven days. In other words, the average duration of the disease was cut almost in half. In many cases the temperature dropped to normal in less than forty-eight hours after onset.

In 78.4 per cent of these patients who received serum early only one lobe was infected. In 21.6 per cent there was involvement of two lobes. There was no way of knowing whether both lobes were already involved at the time serum was given or whether a spread took place after the injection of serum. This point could probably be settled by careful x-ray study of a series of cases.

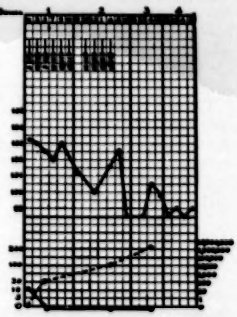

Chart 3.—Septic type I pneumonia treated during first twenty-four hours of disease with concentrated antipneumococcus serum. Upper solid line, temperature; lower solid line, bacteremia; broken line, protective bodies in patient's serum.

The most interesting feature of this series of thirty-seven cases was the practical absence of complications. When one recalls that empyema occurs in more than 6 per cent of type I pneumonias, the complete absence of this complication in the present series is quite significant. Indeed, there were no complications of any kind in these thirty-seven cases, except one instance of acute parotitis.

There were only two deaths (5.4 per cent), a remarkably low figure for such a serious disease. One of these deaths occurred in the group of ten cases collected from my private practice. The patient was a

6. Tillett, W. S., and Francis, Thomas, Jr.: Cutaneous Reactions to the Polysaccharides and Proteins of Pneumococcus in Lobar Pneumonia, J. Exper. Med. **10**: 687 (Nov.) 1929.
7. Francis, Thomas: The Value of the Skin Test with Type-Specific Capsular Polysaccharide in the Serum Treatment of Type I Pneumococcus Pneumonia, J. Exper. Med. **57**: 617 (April) 1933.
8. Abernethy, T. J.: Concentrated Antipneumococcus Serum in Type I Pneumonia: Control of Dosage by Skin Tests with Type-Specific Polysaccharide, New York State J. Med. **36**: 627 (April 15) 1936.
9. Heffron, Roderick: Personal communication to the author.
10. Rogers, E. E.: Personal communication to the author.

man, aged 60, originally an alcoholic, who later became a confirmed veronal (barbital) addict. His general health was very poor at the time he had pneumonia. He received 150,000 units of type I serum.

The other fatality occurred in the group of twenty-seven cases collected from the pneumonia records at Bellevue Hospital. The patient was 44 years of age and also chronically addicted to alcohol. On admission his leukocyte count was only 6,000 cells. For some reason he received only 52,000 units of type I serum, not nearly enough for a patient who was obviously a poor risk. He died on the fourth day of the disease.

In table 2 I have collected from the sources mentioned 160 cases of type I pneumonia in which serum was administered during the first twenty-four hours of the disease. In this series there were eight deaths, a mortality rate of only 5.0 per cent, one-third the death rate for all serum-treated cases, one-sixth the standard death rate for non-serum treated cases. These figures are certainly impressive, but no more so than the twenty-five cases of type I pneumonia recently reported by Abernethy,[9] who were treated comparatively early with concentrated serum at the Hospital of the Rockefeller Institute. There was not a single death in Abernethy's series, and none of the patients developed empyema or other serious complications.

Results such as these furnish much food for thought. Physicians who are interested in public health can now visualize the ultimate control of pneumonia, for there is every reason to believe that what has already been accomplished with type I serum can be achieved with the other types as well. It is true that type III pneumonia presents certain difficulties, but figures are already at hand which show that types II, V, VII, VIII and XIV are amenable to serum therapy. No doubt, in the course of time, investigators will be able to demonstrate for the other types of pneumonia what can now be proved for type I, namely, that the early and adequate use of antipneumococcus serum reduces pneumonia to a comparatively mild infection.

Finally, when one considers that serum is now available for approximately 65 per cent of all pneumococcic pneumonias, one cannot fail to be impressed with the great gap that exists today between what could be done and what is being done for the pneumonia patient. Herein lies the reason for the campaign for the control of pneumonia that is now being conducted in New York State.

SUMMARY

When patients with pneumococcus type I pneumonia are treated very early with homologous serum, the following phenomena are usually observed:

1. The disease may be completely aborted, the temperature and the pulse and respiration rate dropping to normal within twelve to twenty-four hours after the administration of serum.

2. There is striking improvement in the patient's general condition, as the result of the disappearance of toxemia.

3. Early serum treatment prevents the spread of infection from one lobe to another and even limits the area of infection in the lobe primarily infected.

4. Bacteremia is prevented or, if already present, is quickly checked.

5. The leukocytes rapidly return to normal.

6. Homologous agglutinins, precipitins and protective bodies promptly make their appearance in the circulating blood.

7. Skin tests become positive to the homologous polysaccharide.

8. The death rate is cut to approximately one-sixth the standard death rate for untreated type I pneumonia.

9. These conclusions are derived from studies on type I pneumonia, but evidence is rapidly accumulating that they apply with equal validity to several other types as well.

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THE SIGNIFICANCE OF SEROLOGIC TYPES AMONG MENINGOCOCCI

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Meningococci form a single species, well defined, the members of which fall into broad serologic groups. The recognition of serologic differences by Dopter,[1] Arkwright,[2] Lieberknecht,[3] Trautmann and Fromme[4] and Elser and Huntoon[5] in 1909 paved the way for the intensive work that followed and resulted in the classifications of meningococci into serologic types, which were reported during 1915-1918. At this time it was generally recognized that there were two main groups, which overlapped to some extent. They were called 1 and 2 by the English workers and A and B by the French. By absorption of agglutinins these were further divided by Gordon and Murray[6] into four types, 1 becoming I and III, 2 becoming II and IV. French workers[7] found two other groups, C and D, which were uncommon. Meanwhile other classifications had been developed elsewhere, including the bacteriotropin classification of Evans,[8] which was on an entirely different basis. The relationship of these different classifications to one another is shown in table 1.

The four-type classification of Gordon and Murray has come into use in all the English speaking countries, while the broader A and B groups are more commonly recognized elsewhere.

During the years since these 1915-1918 classifications, most of the work on distribution of types of meningococci has been done in the English speaking countries, and down to the present time it has been possible to place nearly all strains of meningococci in one of the Gordon-Murray types. There have been a few strains

Read before the second International Congress for Microbiology in London, July 27, 1936.

1. Dopter, C.: Etude de quelques germes isolés du rhino-pharynx, voisins du méningocoque (paraméningococcus), Compt. rend. Soc. de biol. **67**: 74, 1909.

2. Arkwright, J. A.: Varieties of the Meningococcus with Special Reference to a Comparison of Strains from Epidemic and Sporadic Sources, J. Hyg. **9**: 104, 1909.

3. Lieberknecht, A.: Ueber Pseudomeningokokken aus dem Rachen gesunder Schulkinder, vergleichen mit echten Meningokokken unter besonderer Berücksichtigung des Wachstums dieser Arten auf hämatinhaltigen Nährböden, Arch. f. Hyg. **68**: 143, 1909.

4. Trautmann, Heinrich, and Fromme, W.: Beiträge zen Epidemiologie and Bakteriologie der epidemischen Genickstarre, München. med. Wchnschr. **55**: 971 (April) 1908.

5. Elser, W. J., and Huntoon, F. M.: Studies on Meningitis, J. M. Research **20**: 373 (June) 1909.

6. Gordon, M. H., and Murray, E. G. D.: Identification of the Meningococcus, J. Roy. Arm. M. Corps **25**: 411, 1915.

7. Nicolle, M.; Debains, E., and Jouan, C.: Etudes sur les méningocoques et les sérums antimeningococciques, Ann. Inst. Pasteur **32**: 150, 1918.

8. Evans, A. C.: The Tropin Reactions of Antimeningococcus Serum, Bull. 124, Hyg. Lab., U. S. P. H. S., 1920, p. 43.

that have not belonged in this classification but have formed other groups; these have been uncommon. I shall speak more of them later.

These types among the meningococci are not as clear cut and sharply defined as are those of some other bacteria; namely, the pneumococci. Nearly all strains show a degree of overlapping, and in some this is so marked as to make typing, even by absorption of agglutinins, well nigh impossible. This means that the representative strains of each type must be chosen with great care, especially if they are to be used for making typing serums. The antigenic patterns of different strains of meningococci may be said to be made up of four components in different proportions, and the predominant component determines the type of any individual strain. This has been illustrated by diagrams representing several strains of the I-III group.[9] Table 2 shows that strains typed as I when certain type I and type III strains were used as standards can be typed as III when other strains of these types were used as standards. As Fildes [10] has aptly expressed it: "The classification of meningococci is real and is not dependent upon arbitrary selection of standards. But selecting standards for determining subgroups is arbitrary and may lead to much confusion if one and the same standard is not maintained."

Thus it is seen that quite different results may be obtained in typing the same cultures in different laboratories. This has been emphasized by Griffith [11] as well as by Fildes. With certain serums prepared from members of each of the four types, a division into four distinct groups could be effected by means of absorption of agglutinins. With serums prepared from other members of each type, differentiation into similar groups could not be made.

Not only do different strains of the same type vary in antigenic pattern but a given strain may change surprisingly in this respect. I shall give one striking example of this change, which is found on comparing Dr. Gordon's original standard type I strain, "Littledale," which has had more than twenty years of laboratory maintenance, with a dried suspension of the same strain which Dr. Gordon, with remarkable foresight, prepared in 1915 when it was originally isolated and studied. It now falls definitely in type III. There seems to be no possible doubt about this change, as identical results with it have been obtained not only by myself but by Dr. Scott [12] of the British Ministry of Health and by Dr. Maegraith [13] of Oxford University. Dr. Gordon kindly supplied the dried material, and the living transplants of the Littledale strain were obtained from several different sources. Examples such as this can be multiplied.

It has not been possible to study the standard type strains of other countries and to compare them with the original dried strains. Twenty years ago they were in close agreement, whether called types I-III and II-IV or A and B; but twenty years of laboratory maintenance in different countries and under different environmental conditions has probably led to a wide divergence in the antigenic pattern of the strains used as standards.

9. Branham, Sara E.: Serological Diversity Among Meningococci, J. Immunol. **23**: 49 (July) 1932.
10. Fildes, P.: The Serological Classification of Meningococci, Brit. J. Exper. Path. **1**: 44 (Feb.) 1920.
11. Griffith, A. S.: A Study of the Serological Reactions of Meningococci and an Account of the Method of Preparation of Antimeningococcus Serum, J. Hyg. **19**: 33 (July) 1920.
12. Scott, W. M.: Personal communication to the author.
13. Maegraith, B. G.: Variation in Agglutination of Stock Cultures of Meningococci, Brit. J. Exper. Path. **14**: 219 (Aug.) 1933.

Wulff [14] has described an epidemic in Denmark in which only one strain seemed to correspond with any English type, but 95 per cent fell into a group which corresponded to the French type A. Originally the French type A and the English type I-III seemed to be identical.

All strains tend to spread and are much more easily typed when first isolated than later. Several workers have reported that they consider the strains of group II to become irregular in classification more quickly than others.[15] This means that serologic studies done in various places cannot be compared on account of a lack of a uniform basis. This is a handicap in epidemiologic studies and in the manufacture and standardization of therapeutic serums. It is important that there be a uniformity of standard strains among different nations. It makes no difference whether the serologic groups are designated as A and B or as I-III and II-IV provided the type strains actually represent their classification and the relation of the classifications to each other is understood. Standard strains should be kept true to type in a central laboratory somewhere, and dried cultures of them, as well as living transplants, should be available from this place to all who want them. It should always be kept in mind that the living culture is changing and that the dried culture is presumably fixed.

TABLE 1.—*The Relationship Between Various Classifications of Meningococci* *

Dopter	Nicolle, Debains and Jouan	Griffith and Scott	Gordon and Murray	Evans
Meningococcus.....	A	I	I / III	R
Parameningococcus	B	II	II / IV	S T?
	C			
	D			

* Based on a table compiled by Murray: The Meningococcus, Medical Research Council, Special Report Series, No. 124, p. 103.

At the time when Gordon first reported his classification into four groups, type I was predominant. Gradually type II became more abundant. During 1915-1917 the distribution seemed to be about as shown in table 3.[16]

Dopter [17] made a similar report that, at the beginning of the war his meningococcus proper (A, I-III) was most common but that by 1916 the parameningococcus (B, II-IV) had become as much as 45 per cent of the cases. In 1917-1918 Netter [18] found type B (II-IV) twice as common in France as type A (I-III), and Glover [19] in England reported an outbreak due entirely to type II in 1918.

In the United States Hitchens and Robinson [20] found types I and II (33 per cent each) to be about equal in

14. Wulff, F.: Etude comparative sur les méningocoques, types anglais et danois, Compt. rend. Soc. de biol. **85**: 620, 1921.
15. Tulloch, W. J.: The Differentiation by Means of the Absorption of Agglutinin Test of the Types of Meningococci Obtained from the Cerebrospinal Fluid of Cases During the Current Outbreak of Cerebrospinal Fever, J. Roy. Arm. M. Corps **29**: 66, 1917. Gordon, M. H.: The Definition of the Meningococcus, Great Britain Medical Research Council, Special Report Series, No. 3, 1917, p. 10.
16. Flack, M.: Report on Cerebrospinal Fever in the London District, December 1915-July 1916, Great Britain Medical Research Council, Special Report Series, No. 3, 1917, p. 31.
17. Dopter, C.: Research Society Reports: Observations on Serotherapy for Cerebrospinal Meningitis, M. Bull. **1**: 338, 1918.
18. Netter, A.: Research Society Reports, M. Bull. **1**: 340, 1918.
19. Glover, J. A.: The Cerebrospinal Fever Epidemic of 1917 at X Depot, J. Roy. Arm. M. Corps **30**: 23, 1918.
20. Hitchens, A. P., and Robinson, G. H.: A Survey of Meningococcus Cultures Recently Isolated in This Country According to the Method of Gordon, Abstr. Bact. **2**: 18, 1918.

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In the United States Hitchens and Robinson [20] found types I and II (33 per cent each) to be about equal in

occurrence, whereas types III and IV (17 per cent each) were much less frequent.

For the next ten years there was relatively little meningitis, and there are practically no studies on the distribution of serologic types reported during that period.

In 1928 meningitis began to reappear. A wave, believed by many to have had its origin in China, moved eastward, by way of the Philippine Islands, to the California coast and spread eastward over the United States. By 1931 outbreaks began to occur in the British Isles and on the European continent. Whether these were a continuation of the wave which had moved eastward over the Atlantic, or whether the spread had been westward more slowly from the Orient is not entirely certain.

There have been a number of reports on typing of the strains involved since that time and the shift has been steadily, though rather irregularly, in one direction; namely, the overwhelming predominance of the I-III (A) group. Types I and III have seemed to cross much more than they did in the 1915-1918 period, overlapping each other so intimately that separation, even by absorption, is difficult and in some cases impossible. On the other hand, types II and IV have seemed to have become entirely distinct, with no crossing. Also a new member of the genus has appeared (Neisseria flavescens); thus the type distribution in the United States during 1928-1930 (table 4).[21] Type II by this time had last place.

In our studies made during 1934-1936, more than 95 per cent strains have been of the I-III group. Type II strains have been increasingly few, and no type IV strain (or N. flavescens) has been encountered since 1928.

Information about the geographic distribution of types is very incomplete, consisting necessarily of isolated reports from here and there. But one gains an impression that the trend toward the preponderance of the I-III (A) group has been world wide and not local. Reports from India [22] and South Africa [23] indicate this, as well as the British reports of several outbreaks of type I in 1931.[24] From Germany [25] in 1928-1929 and from Russia [26] in 1929 are reports that all groups are present, while Turkey declares a predominance of type B.[27]

Of 165 strains received by the National Institute of Health since Jan. 1, 1936, only fourteen were of type II; thirteen of these came from a single outbreak in Charleston, S. C. In this outbreak there were a few of the I-III group, but type II was the rule.

This occurrence of more than one type in a single outbreak has been noted ever since the earliest serologic studies were made. In general it may be said that a small, sharp, well localized outbreak is apt to be due to strains of one type, which may behave very much alike in all serologic relationships. The more widespread the outbreak and the longer it lasts, the more tendency is found for various types to be involved. There does not seem to be any definite sequence of type as was suggested by Gordon,[28] but all types and many intergradations may occur. The most extreme example of this multiplicity of type that has come to my attention is the epidemic in Chicago in 1928. The wave of meningitis that began on the west coast of the United States had seemed to be due entirely to the I-III group. When it reached Salt Lake City the strains that were isolated were crossing very markedly with type II, so much so that absorption of agglutinins was necessary to type them. In Chicago the strains forsook all precedent. All types were present, but IV was predominant, with second place taken by a coccus which was not really a meningococcus. It was a member of the same genus, morphologically indistinguishable, but neither culturally nor serologically a meningococcus. All strains of this organism formed a clear cut serologic group; they fermented no sugars and produced a golden yellow pigment. I have called this micro-organism Neisseria flavescens [29] (literally "becoming a golden yellow"). We encountered no like strain outside of Chicago and have never found it since, though it was found abundantly there at that time by three independent investigators. So far as I know this is the only record of a member of the genus Neisseria, other than the meningococcus, being involved in an epidemic of meningitis, and it seems of considerable epidemiologic importance.

Only one culture of a type IV meningococcus was found outside of Chicago, and this came from a man

TABLE 2.—*The Apparent Change in Type of Some Strains of Meningococci When a Change Is Made in Typing Serums*

Number	Strain	Serum I a (178)						Serum III a (146)						Indicated Group	Serum I b (370)						Serum III b (153)						Indicated Group
		100	200	400	800	1,600	3,200	100	200	400	800	1,600	3,200		100	200	400	800	1,600	3,200	100	200	400	800	1,600	3,200	
1	304	4	4	4	3	1	0	4	4	1	0	0	0	I	0	0	0	0	0	0	4	3	2	0	0	0	I
2	321	4	4	4	3	3	1	4	4	4	2	1	0	I	3	3	2	1	0	0	4	4	4	3	2	0	III
3	329	4	4	4	4	3	2	4	4	4	2	0	0	I	3	3	2	0	0	0	4	4	4	3	2	0	III
4	335	4	4	4	4	3	0	4	4	3	1	0	0	I	1	1	1	0	0	0	4	4	4	4	2	0	III
5	337	2	2	1	1	0	0	4	4	4	4	3	0	III	3	3	3	3	3	0	3	3	3	2	0	0	I
6	349	4	4	4	4	2	0	4	4	4	4	4	3	III	4	4	4	4	4	3	4	4	4	4	2	0	I
7	350	4	4	4	3	1	0	4	4	4	1	0	0	I	0	0	0	0	0	0	4	4	4	3	1	0	III
8	357	4	4	4	3	2	1	3	2	2	1	1	0	I	2	2	2	1	0	0	4	4	4	3	2	1	III
9	366	4	4	4	4	3	1	4	4	3	1	0	0	I	4	4	4	0	0	0	4	4	4	3	1	0	III
10	176*	4	4	3	3	3	2	4	2	1	0	0	0	I	4	4	3	3	2	1	0	4	1	0	0	0	I
11	146*	3	3	2	1	0	0	4	4	4	4	3	2	III	3	3	3	2	2	0	4	4	4	4	3	2	III
12	270*	4	4	3	2	1	0	2	2	1	0	0	0	I	4	3	3	2	1	0	1	1	1	0	0	0	I
13	153*	2	2	0	0	0	0	3	3	3	3	0	0	III	2	2	2	1	0	0	3	3	3	2	2	0	III

* Control (standard type strains).

21. Branham, Sara E.; Taft, C. E., and Carlin, S. A.: Studies on Meningococci Isolated in the United States, 1928-1930: Serological Classification and Geographic Distribution, Pub. Health Rep. **46**: 897 (April 17) 1931.

22. Sen, A. K.; Seal, S. C.; Bose, Saroj, and Das Gupta, B. C.: J. Indian M. A. **2**: 287 (March) 1934.

23. Ordman, D.: The Epidemiology of Meningitis in South Africa, S. Africa M. J. **6**: 757 (Dec. 10) 1932.

24. Hood, A., and Little, C. J. H.: Cerebrospinal Fever in the Aldershot Command, Section II, J. Roy. Arm. M. Corps **57**: 335 (Nov.) 1931. Whittingham, H. E.; Kilpatrick, J. M., and Griffiths, E. W. B.: Observations on a Cerebrospinal Fever Outbreak in the Royal Air Force in 1931, Brit. M. J. **1**: 1101 (June 27) 1931.

25. Jötten, K. W., and Kortmann, T.: Ueber Meningocockhentypen, Ztschr. f. Immunitätsforsch. u. exper. Therap. **59**: 129, 1928.

26. Troitsky, A., and Bamm, B.: Meningokokkentypen in Odessa, J. Epidem. i. Mikrobiol., No. 11, 1933; abstr. in Zentralbl. f. Bakt., I. Ref. **114**: 515 (Aug.) 1934. Chlebnikowa, A., and Asbelew, W.: Meningokokkenstudium, Gygiena: Epidemiologia, No. 2, 1930; abstr. in Zentralbl. f. Bakt., Ref. I **103**: 559, 1931.

27. Anil: Personal communication to the author.

28. Gordon, M. H.: Research Society Report, M. Bull. **2**: 342, 1918.

29. Branham, S. E.: A New Meningococcus-like Organism (Neisseria Flavescens, N. Sp.) from Epidemic Meningitis, Pub. Health Rep. **48**: 845 (April 18) 1930.

in Kansas City who had just visited Chicago. No type IV strains has been encountered since that time.

From that time on, as the wave moved eastward, the strains involved were found to be chiefly of type I-III with a few of type II.

The only two outbreaks that have been almost exclusively due to type II have, strangely enough, both occurred in the Carolinas—one in 1928 and one in 1936, eight years apart.

Does more than one type occur in any given case? Such instances have been reported; cases in which more than one type was present throughout the disease,[30] others in which the type seemed to change during convalescence,[31] and in carriers in which one type replaced another. Such reports are very few, but their rarity may be due to the fact that repeated typing of cultures obtained from a given patient is seldom done.

During 1915-1918 many surveys of meningococcus carriers were done, both in military camps and among civilian populations. From these studies a definite impression arose that type II was predominant among carrier strains and that type I led among active cases.[32]

Interesting are the results obtained by Tulloch,[33] who found 410 carriers among 10,000 men. The type distribution is given in table 5.

Within recent years relatively few surveys of carriers have been made, but there is some evidence to show that such a distribution still occurs. Rake [34] found type II in twenty-one of twenty-six carriers in a careful survey in 1934. During the spring of 1936 Hitchens [35] made surveys of carriers in a camp of young men among whom several cases of meningitis had occurred. The cases were due to type I-III; but of thirty-nine carrier strains only seven were of group I-III, whereas twenty-five, or nearly 65 per cent, were of group II.

Is any one type more pathogenic than another? It is particularly difficult to find an answer to this question, for in any given outbreak the predominant type is conspicuously responsible for a greater number of deaths. In 1917 Gordon [28] believed that type I infections were the most severe. This view was definitely shared by Andrewes.[36] In the outbreaks of very recent years type II cases have been too few to permit generalization. Is this scarcity of type II cases, contrasted with the abundance of type II among carriers, to be interpreted as evidence of low pathogenicity? Certainly most of the fulminating cases have been due to group I-III, since so few of II were present. However, one of the most explosive outbreaks of fulminating and hemorrhagic cases was due exclusively to type II; namely, a small outbreak in North Carolina in 1928.

There does seem to be considerable evidence that type II is especially apt to be responsible for septicemic and generalized forms of meningococcic infection. Netter [18] noted this in France in 1917. Linden [37] called attention to it in Denmark in 1930. In my own studies I noted that, although I found only thirteen type II strains during 1928-1930, only four of the thirteen came from spinal fluid; the others were from blood stream infections, several of which were mild and chronic. These type II strains comprised 70 per cent of the strains recovered from blood during this period.

A few cases of meningococcic endocarditis have been reported. In those instances in which the type has been determined the strains involved have been usually of the I-III group. Does this circumstance offer additional evidence that type II is less pathogenic than I-III?

Do different types of meningococci vary in toxicity? Apparently the answer to this question is definitely Yes. Gordon [28] noted as early as 1917 that type I meningococci produce more powerful endotoxins than do other types. The soluble toxins described by Ferry [38] are produced chiefly by certain strains of the I-III group, notably by some belonging to type III.

TABLE 3.—*Distribution of Types*

		I	II	III	IV
Gordon.....	1915	60%	27%	12%	3%
Flack.....	1915-1918	39%	39%	7%	15%
Tulloch.....	1917	30%	41%	13%	17%

TABLE 4.—*Distribution in the United States During 1928-1930*

I-III	II	IV	N. flavescens
81%	5.5%	7.6%	5.9%

TABLE 5.—*Type Distribution in Four Hundred and Ten Carriers*

I	II	III	IV
29%	57%	0	37%

Are there cultural, biochemical or other physiologic differences to be noted among the various types of meningococci? Colonies are generally indistinguishable on the usual mediums, and certainly there are no differences in morphology or arrangement of cells. Differences in fermentation activity have been noted by some workers. Both Scott [31] and Griffith [39] considered that serologic grouping was definitely related to the degree of fermentative activity on dextrose and maltose and that individual strains of meningococci rarely fermented these sugars to an equal degree; maltose was fermented more strongly by the I-III group and dextrose by the II-IV group.

Petrie [40] showed that colonies of meningococci would produce halos of precipitate on solid mediums containing the homologous serum. Kirkbride and Cohen [41] have found that it is the I-III group which does this and that the type II strains which they studied did not have this property. Type IV strains have not been studied in this way.

30. Price, R. B., and Singer, E. O. A.: Notes on a Case of Meningococcus Septicemia, J. Roy. Arm. M. Corps **56**: 215 (March) 1931.
31. Scott, W. M.: A Study of Meningococci Occurring in the Spinal Fluid and of Similar Organisms in the Nasopharynx, Local Govt. Bd. Rep., N. S. **110**: 56, 1916; J. Hyg. **15**: 464, 1915.
32. Scott, W. M.: A Further Study of the Serological Reactions of Meningococci from the Spinal Fluid and the Nasopharynx, with Special Reference to Their Classification and to the Recurrence of the Latter Among Normal Persons, J. Hyg. **17**: 191 (July) 1918.
33. Tulloch, W. J.: Report on the Examination of Carriers Isolated from 10,000 Men in the Garrison of X, April, May, June, 1916, Great Britain Medical Research Council, Special Report Series, No. 3, 1917, p. 70.
34. Rake, G.: Studies on Meningococcus Infection: VI. The Carrier Problem, J. Exper. Med. **59**: 553 (May) 1934.
35. Hitchens, A. P.: Personal communication to the author.
36. Andrewes, F. W.: A Consideration of Recent Serological Work on the Meningococcus, Lancet **2**: 847 (Dec. 8) 1917.
37. Linden, H.: Beitrag zur Frage der Bedeutung der Meningokokkentypen für Epidemiologie und Pathogenese der Meningokokkenerkrankungen, Zentralbl. f. Bakt. (part 1) **120**: 362 (Jan. 20) 1931.
38. Ferry, N. S.; Norton, J. F., and Steele, A. H.: Studies of the Properties of Bouillon Filtrates of the Meningococcus: Production of a Soluble Toxin, J. Immunol. **21**: 293 (Oct.) 1931.
39. Griffith, F.: Identification of the Meningococcus in the Nasopharynx with Special Reference to Serological Reactions, J. Hyg. **15**: 446, 1915; Loc. Govt. Bd. Rep. **110**: 41, 1916.
40. Petrie, G. F.: A Specific Precipitin Reaction Associated with the Growth of Agar Plates of Meningococcus, Pneumococcus and B. Dysenteriae (Shiga), Brit. J. Exper. Path. **13**: 380 (Aug.) 1932.
41. Kirkbride, M., and Cohen, S.: Precipitation Reactions of Meningococcus Strains with Immune Serum in Agar Plates in Relation to Antigenic Activity, Am. J. Hyg. **20**: 444 (Sept.) 1934.

The carbohydrates of the meningococci have been studied by Zozaya and Wood,[42] by Miller and Boor [43] and by Scherp and Rake.[44] Zozaya and Wood found one polysaccharide common not only to meningococci but to all members of the genus Neisseria as well. Scherp and Rake have found, in addition, specific carbohydrates for types I, II and III. Types I and III were found to have the same carbohydrate, and analysis has shown it to be a sodium salt of a polysaccharide acid. The specific carbohydrate of type II has not yet been thoroughly studied, and that of type IV has not yet been investigated.

There is apparently no relationship between electrical charge and type. Studies made by Gibbard [45] and also by me [46] indicate that recently isolated strains of all types have a higher charge than older strains which have had a period of laboratory maintenance, but this was not correlated with type by either of us.

What rôle does serologic type play in serum therapy of meningococcic meningitis? The use of specific monovalent serum has been difficult because the outcome of any given case is so often determined before the type of the infecting meningococcus is known. Thus the general practice is to administer polyvalent serum in all cases. In Great Britain there has been a tendency to administer specific type I-III or II serum after the type is known. There is experimental evidence both for and against such specific therapy. Gordon [47] found that his rabbits had immunity only for the types with which they had been immunized, while Evans [48] found in her animals just as much immunity for heterologous strains.

Typing by a precipitation test, recently described by Rake,[49] can often be done at the bedside and may result in increased use of monovalent serum and the accumulation of more information about its relative usefulness.

This bedside typing can be applied to only a limited number of cases, since there must be abundant specific soluble substance in the spinal fluid and the patient must not have had any serum therapy.

The antitoxin of Ferry has seemed to be more useful in cases due to group I-III strains.

COMMENT AND CONCLUSION

Classifications of meningococci, worked out in the years 1909-1918, represented true serologic relationships which can be plainly recognized today.

Certain changes in these relationships have taken place; types I and III have become so closely interrelated that separation into two types no longer seems to be of definite value in practical everyday work. This I-III or A group has become markedly predominant in nearly all parts of the world that have been heard from.

On the other hand, types II and IV have in the United States at least become entirely distinct from each other so that they do represent two separate groups. There seem to be three types of meningococci: I-III, II and IV. The designation B cannot be well applied to a combination of two such distinct groups as II and IV.

Studies made long ago and at the present time seem to indicate a greater number of type II strains in carriers. This large number of carriers of strain II in proportion to the very small number of type II cases brings up this question: Is II less pathogenic than I-III? This idea finds some support in the following fact: Although 70 per cent of all strains isolated from blood were type II, nearly all the cases of meningococcic endocarditis in which the type has been determined have been due to the I-III group. There is some evidence that type II is especially apt to be responsible for septicemic and generalized forms of meningococcic infection, which may be relatively mild or chronic.

Both the endotoxins of Gordon and the soluble toxins reported by Ferry are produced to a greater extent by the I-III group. Thus one finds at present a predominance of that group of meningococci which seems to be both more invasive and more toxic.

Twenty-Fifth and E streets, N.W.

42. Zozaya, J.: A Serological Study of the Polysaccharides of Meningococcus, B. Anthracis, B. Proteus, B. Subtilis, and B. Mesentericus, J. Exper. Med. **54**: 725 (Nov.) 1931. Zozaya, J., and Wood, J. E.: Study of Carbohydrate and Protein Fractions of Meningococci, J. Infect. Dis. **50**: 177 (Feb.) 1932.

43. Miller, C. P., and Boor, A. K.: The Carbohydrates of Gonococcus and Meningococcus, J. Exper. Med. **59**: 75 (Jan.) 1934.

44. Scherp, H. W., and Rake, G.: A Type-Specific Substance from the Meningococcus, Proc. Soc. Exper. Biol. & Med. **31**: 537 (Feb.) 1934. Rake, G., and Scherp, H. W.: J. Exper. Med. **58**: 341 (Sept.) 1933; ibid. **61**: 733 (June) 1935.

45. Gibbard, J.: The Electrophoresis of Neisseria Intracellularis (Meningococcus), Canad. M. A. J. **23**: 689 (Nov.) 1930.

46. Branham, Sara E.: Unpublished work.

47. Gordon, M. H.: Identification of the Meningococcus, J. Hyg. **17**: 290 (July) 1918.

48. Evans, A. C.: Lack of Correlation, Among Meningococci, Between Serological Grouping and Lethal Effects on Rabbits, J. M. Research **42**: 33 (July-Sept.) 1920.

49. Rake, G.: Studies on Meningococcus Infection: V. The Presence of Meningococcus Precipitinogens in the Cerebrospinal Fluid, J. Exper. Med. **58**: 375 (Sept.) 1933.

THE SURGICAL TREATMENT OF MENINGITIS OF OTITIC AND NASAL ORIGIN

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In a recent article Ferris Smith [1] called attention to the well organized exudate at the base of the brain as compared to the more recently appearing exudate over the cerebral hemispheres in patients dying of meningitis of otitic or nasal sinus origin. This suggests that there is a stage of localized basilar meningitis lasting from hours to days before the onset of generalized meningitis. The author advocated early incision and drainage of the dura beneath the pontile cistern by way of a burr opening in the sphenoid bone, made through the posterior wall of the sphenoid sinus or through the roof of the nasopharynx. Three cases of early meningitis treated by this method were reported, with one recovery. In two patients the meningitis was from the sphenoid sinus, the lumbar spinal fluid showing 1,800 cells per cubic millimeter in one, 190 cells in the other. Organisms were not present on smear or culture of the spinal fluid in either case. The third patient had an otitic meningitis and showed 1,920 cells with organisms in the spinal fluid.

Because the radical procedure advocated by the author runs counter to the accepted treatment [2] of early otitic or nasal sinus meningitis, it seems pertinent to review a series of five consecutive cases of meningitis successfully treated according to certain principles that are coming to be generally accepted. These principles are briefly as follows:

Every patient with suppurative disease of the accessory nasal sinuses or of the middle ear should have an immediate lumbar puncture at the first evidence of beginning meningitis: a slight stiffness of the neck with headache, fever, irritability, drowsiness or vomiting.

From the Department of Otolaryngology, Presbyterian Hospital and Rush Medical College.

1. Smith, Ferris: Basal Meningitis, J. A. M. A. **107**: 189-194 (July 18) 1936.

2. Neumann, H.: Rev. de laryng. **55**: 1 (Jan.) 1934.

If the spinal fluid cell count is elevated but organisms are not found on smear, the suppurative focus in the sinus (case 1), in the labyrinth (case 2) or in the mastoid should be drained. In the case of the mastoid the dura should at the same time be widely exposed over the tegmen of the middle ear and mastoid (case 3). As long as organisms are absent from the spinal fluid the meningitis should be regarded as a localized process adjacent to the focus, and the dura should not be incised. Occasionally a few organisms may be found on smear in early meningitis, but there is no growth on culture, showing that these organisms are not viable, and drainage of the focus will still suffice to produce a cure (case 4). On the other hand, once a diffuse, generalized, suppurative meningitis has developed with organisms on smear and culture, surgical drainage of the basal cisterns by the method of Eagleton [3] (case 5) or perhaps by the method of Ferris Smith [1] may be attempted, though the latter procedure is open to the theoretical objection of exposing the spinal fluid to the mixed flora of the nasopharynx.

During the past four years eight cases of meningitis of otitic or nasal sinus origin have been observed in practice or in the house service of the Presbyterian Hospital. Two patients died of sepsis (thrombosis of the lateral sinus in one, thrombosis of the superior sagittal sinus in one) and one patient died of duodenal hemorrhage. The meningitis in these three cases was localized and was not the immediate or contributory cause of death. The remaining five cases of meningitis were treated successfully, as shown in the following reports:

REPORT OF CASES

CASE 1.—Mrs. R. K., aged 40, was admitted to the Presbyterian Hospital Dec. 30, 1932, because of constant, very severe, left frontal and occipital headache. Her illness began six months before with a severe sore throat, which was soon followed by a purulent postnasal discharge and severe left sided headaches. A month after the onset the left ear began to discharge and continued for two months, but for the past three months the ear had been dry. One month before admission she experienced a severe attack of vertigo and a week later a left facial paralysis and double vision developed, and these had persisted.

Examination on admission disclosed a complete peripheral left facial paralysis, paralysis of the left inferior rectus muscle and marked general emaciation and pallor. The drum membranes were intact and the nasal passages appeared normal, but in the roof of the nasopharynx above the left eustachian orifice a fistulous opening was seen exuding creamy pus and surrounded by granulations. Culture of this pus showed an abundant growth of Staphylococcus aureus. The spinal fluid was under normal pressure but slightly cloudy, with 486 polymorphonuclear leukocytes per cubic millimeter and no organisms on smear or culture. Because of the recent otitis media and the vertigo and facial paralysis the most likely focus for this early meningitis seemed to be the left petrous apex with a fistula into the nasopharynx.

The patient's symptoms did not improve and Jan. 9, 1933, the left petrous tip was explored by a radical mastoidectomy, following which the dura was elevated and a groove was made in the anterior surface of the petrous pyramid between the cochlea and the carotid artery, beginning above the eustachian orifice and going medially and slightly posteriorly to the depth of 1 inch (2.5 cm.). No evidence of bone disease was found.

The severe headaches continued with constant nausea and occasional vomiting and with a low grade, irregular fever reaching 102 F. Repeated examinations of the nasal cavities were negative until on one occasion pus was seen coming from the region of the ostium of the left sphenoid sinus. The diagnosis was suppurative left sphenoiditis and osteomyelitis of the sphenoid bone.

January 18 the left sphenoid sinus was opened intranasally and found to contain creamy pus. The severe headaches were immediately relieved and the other symptoms gradually improved until the patient was discharged, February 25.

Two weeks later, March 10, the patient was readmitted to the hospital because of a severe frontal and occipital headache for one week, and nausea and vomiting for two days. The neck was slightly rigid. Lumbar puncture showed 357 cells, 50 per cent polymorphonuclears and no organisms on smear or culture. A week later the symptoms were slightly improved and the spinal fluid contained 187 cells. March 30 the spinal fluid showed only 97 cells, all lymphocytes. Under general supportive treatment, including an autogenous staphylococcus vaccine made from the nasopharyngeal fistula, the symptoms gradually improved, the fistula healed, and the patient was discharged May 14.

For three years she enjoyed excellent health. In July 1936 she became ill with severe headaches, ataxia of the left arm and leg and spontaneous nystagmus. Because her immediate relatives were Christian scientists she was not seen until she became semicomatose two weeks later. The spinal fluid was under increased pressure (300 mm.) with 30 cells. There was slight rigidity of the neck, the eyegrounds showed an early papilledema and the temperature was 99 F. A provisional diagnosis of left cerebellar abscess was made. Hypertonic dextrose solution was given to reduce the intracranial pressure, but the coma deepened and a few hours later she suddenly became cyanotic and respirations stopped, the pulse continuing for some minutes. Permission for autopsy was refused.

This patient when first seen had a localized, basilar meningitis secondary to an empyema of the sphenoid sinus and an associated osteomyelitis of the sphenoid bone with a fistula into the nasopharynx. Recovery from the meningitis followed simple drainage of the sphenoid sinus. Additional drainage of the sphenoid bone by the method of Ferris Smith would probably have accelerated recovery, but incision and drainage of the dura were not necessary.

CASE 2.—E. O. Jr., aged 8 years, was admitted April 17, 1933, because of repeated vomiting and dizziness for three days with a left suppurative otitis media for three weeks, which began ten days after the onset of scarlet fever. The child was found lying on his right side; there was a constant spontaneous nystagmus toward the right and hearing tests showed no hearing in the left ear. The neck was slightly rigid, the temperature was normal and the mastoid was slightly tender. Lumbar puncture showed the spinal fluid to be under normal pressure but with a cell count of 180.

The diagnosis was suppurative labyrinthitis with beginning meningitis, and immediate operation was advised. Radical mastoidectomy showed a beginning coalescent mastoiditis with moderate softening of the mastoid cell partitions. Owing to the poor general condition of the child, further exploration of the labyrinth was postponed.

The next day, April 18, the temperature was elevated to 100.4 F., the neck was more rigid and lumbar puncture showed a definitely cloudy fluid with 2,900 cells but no organisms. A transfusion of 200 cc. of whole blood was given in the afternoon, and the labyrinth was opened in the evening by removing the stapes and the promontory connecting the oval and round windows. The following day, April 19, there was no longer stiffness of the neck, the spinal fluid was clear with a cell count of 203 per cubic millimeter, and the child was much improved. Two days later, April 21, the last lumbar puncture showed only 78 cells in the spinal fluid.

On April 24 weakness of the left facial nerve was first noted. April 25 the temperature rose abruptly from 99.2 to 105 F. The child was alert and made no complaints but appeared pale and emaciated, and the spleen was enlarged to 4 cm. below the costal margin. A transfusion of 200 cc. of whole blood was given. For three weeks an irregular fever persisted in spite of another transfusion, scarlet fever antitoxin and general supportive therapy. Except for a persistent secondary anemia, palpable spleen and gradually increasing emaciation, there were no other symptoms. Repeated blood cultures were positive for Streptococcus haemolyticus.

3. Eagleton, W. P.: Otitic Meningitis, J. A. M. A. 87:1544 (Nov. 6) 1926.

May 14 the left sigmoid sinus was explored and found to contain a partly broken down thrombus. The jugular vein was ligated and the thrombus removed until bleeding was obtained at about half way from the knee to the torcular herophili. Convalescence from that point on was rapid and uneventful. The facial paralysis began to recede by May 26, the date of discharge from the hospital, and had completely disappeared two months later.

This patient had a localized meningitis from a focus in the labyrinth with 2,900 cells in the spinal fluid but no organisms. Drainage of the focus sufficed to cure the meningitis without the necessity of incising and draining the dura.

Case 3.—J. C. D., a child, aged 4 years, admitted to the Presbyterian Hospital June 5, 1932, complained of bilateral discharging and painful ears for three weeks with an irregular fever as high as 103 F. and beginning stiffness of the neck noted the day before. On examination the child was irritable and uncooperative with definite, slight rigidity of the neck, bilateral aural discharge and only slight mastoid tenderness. Lumbar puncture showed 68 lymphocytes per cubic millimeter in the spinal fluid with a positive Nonne test for globulin.

Bilateral mastoidectomy the same day showed a coalescent mastoiditis. The dura was extensively exposed over the tegmen on both sides and appeared normal except for slight hyperemia. Culture showed Streptococcus haemolyticus. Convalescence was uneventful, the patient being discharged home on the tenth day after operation.

This was a case of very early localized meningitis from an otitis media and mastoiditis. Removing the focus and exposing the dura widely (thus breaking off all infected venules running from the mastoid to the dura) resulted in recovery.

Case 4.—D. S., a boy, aged 7 years, was seen July 8, 1936, with a history of an earache in the right ear six weeks before with spontaneous rupture of the drum membrane the next day. Discharge from this ear was profuse and after the first week was accompanied by considerable pain behind the right eye and an irregular fever as high as 104 F. There was no mastoid tenderness, but because of the fever a roentgenogram of the mastoid had been made two weeks after the onset, showing only clouding of the cells; four weeks after the onset, a second roentgen examination showed cell destruction.

Because of the continued pain behind the eye, the fever and the changes found on roentgen examination, a simple mastoidectomy had been performed July 3 by Dr. Minor E. White of Kankakee, Ill. Marked cell destruction was found over the lateral sinus but the sinus wall itself when exposed appeared normal. Culture showed Streptococcus haemolyticus.

Following the mastoidectomy the pain behind the eye, the fever (chart 1) and the profuse discharge from the middle ear persisted, but there were no other symptoms until July 8. On the morning of July 8 the child complained of double vision, which lasted for only half an hour. The temperature rose to 104.4 F. following a slight chill, and an intermittent spontaneous nystagmus was noticed.

When I first saw the child, in consultation in the afternoon, his temperature was 105.8 F., he was very listless and pale, there was a slight spontaneous nystagmus toward the right ear, the neck was slightly rigid and the Kernig sign was positive. The white blood cell count was 30,000. Lumbar puncture showed the spinal fluid to be under normal pressure but cloudy with 4,000 cells per cubic millimeter, practically all polymorphonuclears. Gram-positive cocci, in pairs and in chains, were found on smear (but subsequently there was no growth on culture). There was no reduction of copper sulfate.

The diagnosis was suppuration of the right petrous apex with perforation of the cortex and beginning generalized meningitis. Immediate drainage of the petrous apex was advised and carried out. The mastoid wound was reopened and a fistula of softened bone was found posterior and inferior to the posterior semicircular canal leading medially and anteriorly. A probe could be passed inward and forward to the depth of 1½ inches (3.7 cm.) beyond the horizontal semicircular canal. The fistula was enlarged, exposing the dura of the posterior fossa, and a small rubber drain was inserted.

At the completion of the operation the child's temperature was 108 F. (rectal) and his general condition very poor. After iced compresses and subcutaneous dextrose the temperature fell to 103.4 F. but the child presented the picture of shock with cyanosis, shallow, irregular respiration and a very rapid, barely perceptible pulse, and the blood pressure could scarcely be obtained from the arm at 40 systolic. Intravenous dextrose 10 per cent and caffeine subcutaneously resulted in a steady improvement; the blood pressure at the arm rose from 40 systolic at 2 a. m. to 105 systolic, 80 diastolic at 5 a. m., the temperature rising to 105 F. The neck was quite rigid but during the day the temperature began to fall, the rigidity of the neck began to disappear, and with the help of transfusions convalescence has been uneventful. The discharge from the middle ear immediately ceased but continued from the fistula, gradually diminishing in amount, for two months.

A patient with apparently hopeless, generalized meningitis recovered following simple drainage of the focus in the petrous apex. Although organisms were found in the smear, the spinal fluid culture proved negative and incision of the dura was not required.

Case 5.—J. C., a Negro laborer, aged 63, came to the Central Free Dispensary April 22, 1933, because of a right otorrhea of two weeks' duration. Three and a half weeks after the onset pain and tenderness over the mastoid developed. The patient was referred to the Cook County Hospital, where a simple mastoidectomy May 2 revealed the cells filled with granulations and pus, with considerable softening of the cell partitions. Convalescence was uneventful except for persistent postaural discharge until May 25, when severe vertigo with nausea and vomiting was experienced. The gait was unsteady; there was a spontaneous nystagmus, mostly horizontal, toward the unoperated ear. Hearing, caloric and reaction tests all showed a dead labyrinth on the operated side. The diagnosis of acute suppurative labyrinthitis was made.

The symptoms gradually subsided until June 6, when the patient complained of an occipital headache and felt ill. There was definite beginning rigidity of the neck and the temperature was 102.6 F. He was admitted at once to the Presbyterian Hospital, where lumbar puncture revealed 1,400 cells and 68 per cent polymorphonuclears but no organisms on smear or culture.

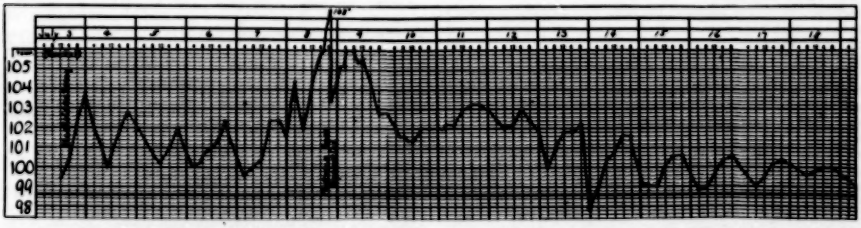

Chart 1 (case 4).—Temperature in early meningitis with 4,000 cells in the spinal fluid, organisms on smear but not on culture, with recovery following drainage of the focus in the petrous apex.

Immediate operation was undertaken that evening. The first operation was found to have been incomplete, with many infected cells remaining in the upper third of the mastoid in the vicinity of the labyrinth. These were removed, a radical mastoidectomy was performed and the labyrinth was opened through the promontory, oval and round windows.

The following day, June 7, the patient was definitely better, with less headache, less stiffness of the neck and a lower temperature. For eight days he seemed fairly well except for slight headache at times with persistent fever around 101 F. and with at no time complete freedom from slight neck rigidity. A second lumbar puncture revealed 1,800 cells, half lymphocytes and no organisms. The patient repeatedly stated that he did not expect to get well.

The morning of June 14 a very severe headache came on acutely, boardlike rigidity of the neck rapidly developed, and

Nine days after operation the lumbar spinal fluid was clear and yellowish, with 180 cells, 65 per cent lymphocytes and no organisms on smear or culture.

Two weeks after operation the lumbar fluid was crystal clear with 90 cells, all lymphocytes, and no organisms, and two days later the patient was discharged feeling quite well except for weakness and emaciation.

One month after operation a plastic operation was done on the external canal and postaural wound and two months after operation the ear was dry, the postaural wound healed and the patient went back to work.

When seen June 6 this patient had a localized meningitis. Drainage of the focus (the labyrinth) resulted in temporary improvement, but some localized meningitis persisted, as evidenced by fever, slight headache

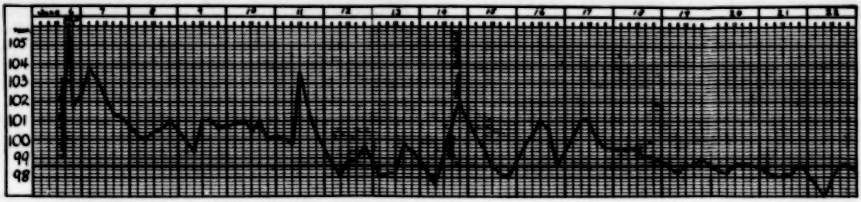

Chart 2 (case 5).—Temperature curve in localized meningitis on admission with temporary improvement after drainage of the focus in the labyrinth; generalized meningitis, June 14, with 5,200 cells, abundant organisms on smear and culture in the spinal fluid. Recovery following incision of the dura and drainage of the basal cisterns.

the Kernig sign was strongly positive for the first time. At noon the patient had a chill, followed by a rise in temperature to 102 F. In the afternoon he was irrational and in considerable pain from the headache. A lumbar puncture revealed 5,200 cells, nearly all polymorphonuclear leukocytes, and organisms were found in abundance on smear and culture. These proved to be nonhemolytic streptococci. By evening the patient did not respond, and his premonitions of the previous week seemed due to be fulfiled.

Immediate operation was decided on and was carried out that night. The posterosuperior angle of the petrous bone including the three semicircular canals was exenterated as far as the internal auditory meatus, exposing the cerebellar and temporal lobe dura with the superior petrosal sinus from the lateral sinus to the internal auditory meatus. The meatus was opened but no collection of pus was found and no cerebrospinal fluid escaped. The cerebellar dura was then incised just lateral to the internal auditory meatus, and a small rubber tissue drain was inserted an inch medially, thus draining the lateral projection of the basal cistern. A large quantity of cloudy spinal fluid gushed forth, soaking sponges, sheets and towels and dripping on to the floor. This flow continued for several minutes until probably several hundred cubic centimeters of spinal fluid had escaped. The patient's breathing, which had stopped three times during the course of the operation, necessitating artificial respiration, now materially improved. The drain was sutured to the dura and the wound packed lightly with iodoform gauze.

The first day after operation the patient was conscious, the headache was much better, the rigidity of the neck was less marked and the temperature did not exceed 99.6 F. Profuse drainage of cerebrospinal fluid through the iodoform gauze required frequent changes of voluminous overlying gauze dressings, and even then the pillow and bed clothes were soaked with the spinal fluid.

The second day after operation the escaping spinal fluid contained 310 cells and 60 per cent lymphocytes, but with abundant organisms on smear and culture.

The fourth postoperative day the flow of spinal fluid ceased, the headache was gone and the rigidity of the neck had disappeared. The drain was removed without the escape of any fluid. The temperature reached normal and stayed normal from this time on, except for occasional rises to 99 F. There was no further headache, stiffness of the neck or sense of impending death.

and slight stiffness of the neck. June 14 the infection broke through the barriers of the localized meningitis and generalized meningitis set in. This was promptly drained at the point of entry, with immediate and progressive improvement. By the fourth day the localized meningeal reaction had walled off the drainage tube from the rest of the cerebrospinal spaces so that it was removed without the escape of any further fluid.

The fact that this patient recovered at all must be attributed not only to the surgical procedure but to the factors of increased resistance of the host and decreased virulence of the invading organism, since the onset of the otitis media preceded the generalized meningitis by two months.

SUMMARY

A series of five consecutive patients with otitic or nasal sinus meningitis recovered after treatment according to accepted principles. These principles consist in the earliest possible diagnosis of meningitis by spinal fluid examination at the first suspicions of meningeal invasion, the cell count being the important consideration. A sharp differentiation must be made between localized meningitis, with increased cells but no organisms on smear or culture and with a normal sugar determination, and generalized meningitis, with organisms on smear and culture with diminished or absent spinal fluid sugar. As long as the meningitis is localized, treatment should be confined to thorough surgical drainage of the focus in the ear or sinus. Occasionally a few organisms may be found on smear but not on culture, and here also simple drainage of the suppurative focus may suffice to produce a cure. The prognosis of localized meningitis is good if it is promptly recognized and dealt with.

Once a generalized meningitis has developed, incision and drainage of the dura at or near the point of entry of the infection may be considered,[3] forced drainage of spinal fluid by the method of Kubie[4] may be

4. Kubie, L. S.: Ann. Otol., Rhin. & Laryng. 43:692-701 (Sept.) 1934.

employed, the intracarotid administration of antiseptics [5] may be tried, or simply repeated lumbar punctures may be relied on.[6] While the prognosis of generalized meningitis of otitic or nasal sinus origin is usually poor, occasional recoveries do occur, especially from meningitis due to the streptococcus.

122 South Michigan Avenue.

COMPARATIVE RESULTS WITH DIETETIC, PARENTERAL AND SURGICAL TREATMENT IN PEPTIC ULCER

PRELIMINARY REPORT ON THE PROTECTIVE VALUE OF HISTIDINE (LAROSTIDIN) IN EXPERIMENTAL ULCERS IN DOGS

DAVID J. SANDWEISS, M.D.
DETROIT

This paper has a twofold purpose: first, to present clinical data evaluating my results with parenteral therapy in peptic ulcers; second, to present at the end a preliminary report (in association with H. C. Saltzstein and W. S. Glazer) on the protective value of histidine against experimental ulcers in Mann-Williamson dogs.

Many forms of parenteral treatment have been reported as beneficial since Holler [1] of Vienna announced in 1922 his experience with "vaccineurin." The more important of these agents have been enumerated in my previous report.[2] Newer ones are constantly coming to the fore. Judging from the increasing number of reports and the favorable results claimed, parenteral therapy is gaining a wide following and appears to offer great encouragement.

CLINICAL INVESTIGATIONS

In an attempt to determine the place of parenteral therapy in the management of peptic ulcer, several series of patients were studied:

1. A series of patients treated by the standard ambulatory diet-alkali regimen was reviewed to learn in what percentage of ulcer attacks and in what type of patients this method of treatment fails to produce symptom-free intervals; also to determine what types of patients manifest a high proportion of relapses within six months and within one year.

2. Several series of patients with chronic ulcers were treated by various parenteral methods. These were divided into two groups: (*a*) an unselected group and (*b*) a group of patients who failed to become symptom free on ambulatory diet-alkali management. In neither group was dietary treatment changed when parenteral therapy was begun. Histidine, vaccine and emetine were the agents used. Two series of patients treated by histidine and vaccine therapy and reported in previous communications [2] are included in this study. Injections of distilled water were administered to a control group. Another control series of chronic ulcer patients was treated by the ambulatory standard diet-alkali regimen. Immediate and remote results were then compared.

Throughout this paper emphasis is laid on the number of ulcer attacks treated rather than on the number of patients under observation. The reason for the emphasis is to me a purely rational one, since it permits a clearer portrayal of the life history of the ulcer and enables a more accurate evaluation of the success or failure of therapy over a period of time. For example, a patient may fail to respond at the present time to diet-alkali management, although he has responded well on ten previous occasions and may again respond favorably in the future. It would not be accurate to report this as a single case of failure of the diet-alkali regimen, since ten of the eleven attacks were successfully treated by this method.

The clinical studies reported in the present paper are based on observations of 291 patients with peptic ulcer who were treated during 1,019 attacks (table 1). This group is a heterogeneous one representing patients from 14 to 74 years of age, of both sexes and encountered in private as well as in clinic practice. Patients from private practice present on the whole an average or better than average social and economic status. Clinic patients naturally represent lower economic and social strata with consequent dietary and environmental handicaps. All races, Negroes, Americans and foreign born, are represented.

All patients were arbitrarily divided into two groups: (*a*) acute: ulcer symptoms of less than five years' duration and (*b*) chronic: ulcer symptoms lasting more than five years.

All patients presented the typical ulcer syndrome. All clinic patients had positive x-ray signs of ulcer.[4] Three per cent (all in the private patient group) had

TABLE 1.—*Number of Ulcer Patients and Number of Attacks Treated by Various Methods*

	Patients	Attacks Treated
Surgery	51	70
Diet-alkali, hospital	93	141
Diet-alkali, ambulatory	200	632
Vaccine	44	68
Larostidin	43	43
Synodal	38	43
Distilled water	22	22
Total	291 (excluding duplicates)	1,019

TABLE 2.—*Location of Ulcer*

	Private	Clinics	Total
Original Ulcers			
Duodenal	60	174	234
Gastric	9	38	47
Duodenogastric	0	10	10
Total	69	222	291
Subsequent Ulcers			
Gastrojejunal ulcers	4	28	32

5. Ersner, M. S., and Myers, David: Variation of Pedicle Flap for Epithelization of Radical Mastoidectomy Cavity, Arch. Otolaryng. **23**: 469 (April) 1936.

6. Neal, J. B.; Jackson, W. H., and Applebaum, E.: Ann. Otol., Rhin. & Laryng. **42**: 658-671 (Sept.) 1934.

The vaccine used was Catarrhal Respiratory Vaccine Combined, Parke, Davis & Co.

The histidine monohydrochloride (larostidin) was supplied by Hoffmann-LaRoche, Inc.

From the gastro-intestinal department of the North End Clinic and the outpatient department of Harper Hospital.

Read before the Section on Gastro-Enterology and Proctology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

Synodal, a preparation containing emetine hydrochloride, which is a mixture of omnadin (J. A. M. A. **106**: 1173 [April 15] 1933) and emetine, was supplied by Winthrop Chemical Company, Inc.

1. Holler, G.: Protein Therapy of Stomach Ulcer, Arch. f. Verdauungskr. **29**: 123-148 (Feb.) 1922.

2. Sandweiss, D. J.: Treatment of Gastroduodenal Ulcer with Histidine Monohydrochloride (Larostidin), J. A. M. A. **106**: 1452 (April 25) 1936.

3. (*a*) Sandweiss.[2] (*b*) Sandweiss, D. J., and Meyers, S. G.: Treatment of Peptic Ulcer with Bacterial Vaccines (Foreign Protein), Am. J. Digest. Dis. & Nutrition **1**: 338-341 (July) 1934.

4. The roentgen studies were made by the x-ray departments of Harper Hospital and the North End Clinic.

such definite ulcer histories that it was not thought necessary to urge x-ray examination because of the expense involved. About one sixth of the patients had had one or more surgical operations for ulcer. About one third had had hospital bed-rest managements on one or more occasions. About three fourths of the patients had been previously treated for peptic ulcer.

The location of ulcer as found in the 291 patients is shown in table 2.

DIETS USED

(*a*) *Diet-Alkali Series.*—The diet used in the diet-alkali regimen was as follows: for patients at rest in bed, hourly feedings of milk and cream plus Sippy powders 1 and 2 with gradual increase by the addition of eggs, cereals and the like (diet 1, original Sippy diet). Ambulatory patients were started on milk, cream, soft boiled or poached eggs, strained cereals, creamed soups, custards, cereal puddings, toast and butter, divided into six feedings a day (diet 2). If, at the end of about ten days these patients continued to be symptom free, puréed vegetables and fruits were added and the meals were divided into three a day with small feedings between meals (diet 3). Scraped beef, minced chicken and flaked whitefish were added to their diets (diet 4) from six to eight weeks after the beginning of dietetic treatment. Sippy powder 2 was always prescribed, but Sippy powder 1, liquid petrolatum, hot abdominal stupes, gastric lavages and antispasmodics were given only when indicated.

TABLE 3.—*Immediate Results in Ambulatory Diet-Alkali Management: Private and Clinic Patients in Acute and Chronic Ulcers (on Basis of Attacks)*

	Patients	Attacks	Per Cent Symptom Free
Private			
1. Acute	..	63	94
2. Chronic	..	78	63
3. Total	62	141	88
Clinic			
1. Acute	..	175	85
2. Chronic	..	316	72
3. Total	198	491	78
Totals	260	632	79

(*b*) *Parenteral Series.*—Patients starting on parenteral therapy were advised to continue with the same diet followed prior to parenteral treatment. Most of the patients treated with parenteral products were on a diet similar to diet 3 at the time treatment was started. After becoming symptom free the patients were permitted to increase their food intake as they pleased. No alkalis were given unless they had been taking alkalis before parenteral treatment was instituted.

RESULTS WITH AMBULATORY DIET-ALKALI THERAPY

Tables 3 and 4 present the results of diet-alkali management of 260 patients [5] (private sixty-two, clinic 198) during 632 ulcer attacks (acute attacks 238, chronic attacks 394).

1. Varying immediate results were obtained, the best results being observed in the private group with acute ulcer (94 per cent). The least satisfactory results were obtained with clinic patients having chronic ulcers (72 per cent, table 3).

2. Fewer relapses within one year were observed in private patients having acute ulcers (39 per cent). The greatest number of relapses occurred in the clinic patients with chronic ulcers (69 per cent, table 4).

3. Relapses within five years were least frequent among the private group with acute ulcers (65 per cent, table 4), and the highest in the clinic group with chronic ulcers (85 per cent, table 4). Despite these figures, it must be pointed out that ulcers of all types, in both groups, have a characteristic tendency to recur. Even in the most favorable group, i. e., private patients with acute ulcers, 75 per cent of attacks treated during a period of approximately ten years have already had relapses (table 4).

TABLE 4.—*Follow-Up Results in Ambulatory Diet-Alkali Management: Private and Clinic Patients in Acute and Chronic Ulcers (on Basis of Attacks)*

	Attacks Symptom Free	Attacks Followed Up	Per Cent Relapses Within 6 Months	Per Cent Relapses Within 1 Year	Known Per Cent Relapses Within 5 Years	Total Known Per Cent Relapses to Date
Private						
1. Acute	59	57	26	39	65	75
2. Chronic	65	59	22	51	80	86
Total	124	116	24	45	73	81
Clinic						
1. Acute	168	138	33	51	70	78
2. Chronic	207	209	54	69	85	89
Total	375	347	46	62	79	85
Totals	499	463	40	57	76	84

PARENTERAL VERSUS DIET-ALKALI THERAPY

The percentage of failure of diet-alkali therapy in ulcer patients of all types having been established, the next approach was to observe the results of parenteral therapy and to determine whether, and wherein, it is of value. The group selected for this study was the chronic ulcer patients, largely of the clinic group. This group had given the least satisfactory results of all types treated by the diet-alkali regimen. Table 5 shows the duration of ulcer symptoms in these series of patients at the time when parenteral treatment was begun. Tables 6, 7 and 8 show the immediate results; table 9 the late results with parenteral treatment in chronic ulcer patients (118 patients, 176 attacks).

1. The immediate results after vaccine, histidine and emetine injections are practically identical. Injections with distilled water produced similar results. The results do not differ appreciably from those obtained with diet-alkali therapy in similar types of patients (table 6).

TABLE 5.—*Duration of Ulcer Symptoms at Time of Treatment (Chronic Cases)*

Duration of Ulcer Symptoms at Time of Treatment	Vaccine	Larostidin	Synodal	Distilled Water	Diet-Alkali (Control)
Less than 5 years	7	4	7	4	10
5-9 years	11	13	7	4	10
10-14 years	9	9	10	8	15
15-19 years	8	10	10	2	9
20-24 years	5	5	1	2	8
25 years or over	4	2	3	2	3
Total	44	43	38	22	55
Per cent with symptoms over 10 years	59	60	63	64	64

2. The immediate results after parenteral therapy are identical for both the unselected series and the group that failed to respond previously to diet-alkalis (table 7).

3. Sixty-two per cent of the chronic ulcer patients who failed to respond to diet-alkali management became symptom free under parenteral therapy (table 8). On the other hand, when parenteral therapy failed even after previous failure with diet-alkali

5. The diet-alkali group includes a number of patients observed in the Harper Hospital outpatient department by Dr. C. D. Moll and in the North End Clinic by Dr. S. G. Meyers.

management, 65 per cent became symptom free on a subsequent diet-alkali regimen (table 8). This demonstrates the value of instituting parenteral therapy in patients who do not respond to standard management, and also the value of alternating treatment in refractory cases before resorting to surgery (unless emergency indications arise).

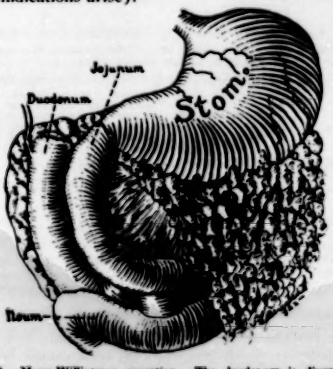

Fig. 1.—Mann-Williamson operation. The duodenum is diverted into the terminal ileum. The stomach is anastomosed to the jejunum. (Eusterman and Balfour.)

4. The percentage of relapses at the end of one year was higher in the parenterally treated cases than in the control group subjected to diet-alkali treatment (table 9).

5. The best results in medical management of refractory cases, however, are obtained with hospitalization. Eighty-four per cent of the attacks were immediately relieved by hospital bed rest and diet-alkali management (table 8). The percentage of relapses in the latter group at the end of five years is less than the percentage of relapses at the end of one year with vaccine, histidine or emetine therapy (table 9). *This is very important!*

TABLE 6.—*Immediate Results: Parenteral versus Diet-Alkali Management: Chronic Cases (on Basis of Attacks)*

Method of Treatment	Patients	Attacks	Per Cent Symptom Free
Vaccine	44	68	65
Larostidin (histidine)	43	43	54
Synodal (emetine)	38	43	56
Distilled water	22	22	50
Total parenteral (injections)	118	176	60
Ambulatory diet-alkali (chronic)	55	55	53

6. Although surgical treatment gives the highest percentage of immediate symptom-free intervals (89 per cent, table 8) and the smallest percentage of relapses within one year (46 per cent, table 9), it nevertheless shows recrudescence in 76 per cent of patients within five years (table 9). The total of known relapses is highest in the surgical series (93 per cent, table 9). This is true not only of those operated on in different localities and other institutions and who later returned to us for treatment of relapses or for gastrojejunal ulcers (naturally those who continued to be symptom free did not report to us) but also of those operated on under our observation. Of the seventy operations in the present series, thirty-four were performed in Detroit (by different surgeons). Of these patients, three (8.8 per cent) died postoperatively, one was moderately improved and thirty (88 per cent) became symptom free. I was able to follow up twenty-five of these thirty symptom-free patients. Twenty-two (88 per cent) are known to have developed relapses of ulcer symptoms. Only three are known to be symptom free. Considering therefore the risks of surgery, the postoperative mortality, the recurrence of ulcers after operation and the not infrequent development subsequently of gastrojejunal ulcers (which bring even greater difficulties in medical management), I do not think that surgery is the treatment of choice in peptic ulcer, unless the following indications are present: (*a*) Perforation. (*b*) Gastric ulcer suspected of malignancy. (*c*) High grade obstruction, not relieved by adequate medical management. (*d*) Repeated and frequent hemorrhages.

TABLE 7.—*Immediate Results: Parenteral (Injection) Treatment: Chronic Cases (on Basis of Attacks)*

	Unselected	Diet-Alkali Failures	Total
Aggravated	3%	6%	6%
No improvement	17%	19%	19%
Moderate improvement	21%	15%	15%
Symptom free	59%	60%	60%
Number of attacks	97	79	176
Number of patients	..	..	118

ACCOMPLISHMENT AND USEFULNESS OF PARENTERAL THERAPY

Table 10 illustrates the percentage of attacks that necessitated hospitalization and surgical intervention before and after parenteral therapy was instituted at the North End Clinic. Table 11 shows what I believe may be expected from the use of parenteral therapy in all types of ambulatory ulcer patients.

Fig. 2.—Dog died twelve days after operation; 20 cc. of larostidin (800 mg. of histidine monohydrochloride) had been given. Inflamed ulcer with necrosis of surface.

1. Fewer patients were hospitalized and fewer patients were operated on after parenteral therapy was instituted. However, in most of the parenterally treated

V 19

patients a relapse occurred within one year, and more relapses in this group required treatment than did those in the group subjected to diet-alkali management (table 10).

2. Parenteral therapy has fewer indications among private patients with acute ulcer, since 94 per cent of this group responded to diet-alkali management. Among

TABLE 8.—*Immediate Results: Surgery, Hospital Bed-Rest Management and Ambulatory Treatment in Refractory Cases: Chronic Cases (on Basis of Attacks)*

Method of Treatment	Patients	Attacks	Per Cent Symptom Free
Surgery	51	70	80
Hospital bed rest	98	141	84
Diet-alkali failures treated parenterally (injection)	56	79	62
Parenteral failures treated with diet-alkalis	26	26	65

TABLE 9.—*Follow-Up Results: Parenteral versus Diet-Alkali Management; also Surgery: Chronic Cases (on Basis of Attacks)*

	Attacks Symptom Free	Attacks Followed Up	Per Cent Relapses Within 6 Months	Per Cent Relapses Within 1 Year	Known Per Cent Relapses Within 5 Years	Total Known Per Cent Relapses to Date
Vaccine	45	57	42	84	*	*
Larostidin (histidine)	21	21	86	90	*	*
Synodal (emetine)	25	23	57	87	*	*
Distilled water	13	13	67	92	*	*
Ambulatory diet-alkali (chronic)	29	26	35	54	*	*
Hospital diet-alkali	119	113	30	50	76	90
Surgery	62	56	32	46	76	90

* Too recent for comparative results.

TABLE 10.—*Per Cent of Attacks Treated Ambulantly, Hospital Bed-Rest Management and Surgery Before and After Parenteral Therapy Was Instituted at North End Clinic*

	Patients	Attacks	Per Cent Attacks Treated Ambulantly	Per Cent Hospitalized	Per Cent Operated On
Before parenteral treatment was started (3½ year period)	70	143	61	13	6
After parenteral treatment was started (6½ year period)	129	265	95	4	1

the chronic ulcer patients of both the private and the clinic group parenteral injections have their greatest field of usefulness (table 11).

STANDARD METHODS OF TREATMENT

To show what permanent effect, if any, the standard methods of treatment (diet-alkali management, vaccine [6] or surgery) have on patients (not on basis of attacks) over a long period of time, I have selected patients who have been treated for over five years for ulcer. Of the 291 patients studied 155 belong to this group (table 12).

1. Twenty-six patients (or 17 per cent, table 12) were symptom free five years or longer after treatment of their ulcer attacks. However, in fifteen of the twenty-six patients (approximately 60 per cent) ulcer relapses developed after a symptom-free interval of five years or longer.

6. The original series of patients treated with vaccine and referred to previously [4] was treated more than five years ago.

2. Only five patients (or 3 per cent of the total 155) are still symptom free from five and one-half to seven years after the first and only ulcer attack. Further follow up may show that these may also relapse. As an example, one in our series of 291 patients had an ulcer hemorrhage twenty-one years before and remained symptom free approximately eighteen years; during the last three years he has become refractory to treatment.

3. The small percentage of patients with five year (or longer) symptom-free intervals may be partly explained by the high percentage (76) of clinic patients in this series. This group of patients are of the lower economic and social strata, living under dietary handicaps. Environmental difficulties and inner emotional conflicts were frequently present and difficult to relieve.

TABLE 11.—*Field for the Usefulness of Ambulatory Diet-Alkali Management and Parenteral Therapy*

	Patients	Attacks	Symptom Free (Diet-Alkali)	Value of Parenteral Therapy (60% of Diet-Alkali-Failures, Symptom Free)*
Private				
1. Acute	...	63	94%	3 or 4 out of 100 attacks
2. Chronic	...	78	83	11 out of 100 attacks
3. Total	92	141	88	7 or 8 out of 100 attacks
Clinic				
1. Acute	...	175	85	9 out of 100 attacks
2. Chronic	...	316	72	16 or 17 out of 100 attacks
3. Total	198	491	76	14 or 15 out of 100 attacks
Totals	290	632	79	12 or 13 out of 100 attacks

* From table 3 we know the percentage of various types of ulcer patients responding to ambulatory-diet-alkali management. From table 7 we know the percentage of diet-alkali failures responding to parenteral treatment. If these experiences are general, one may determine the approximate value of parenteral therapy in the various types of ulcer patients. For example: given 100 private patients with acute ulcers (of less than five years' duration), 94 per cent become symptom free under ambulatory-diet-alkali management (table 3). Six per cent therefore fail to become symptom free. Approximately 60 per cent of these six diet-alkali failures (three or four patients) will respond to parenteral therapy. It would therefore not be advisable to give routine parenteral treatment to all the 100 patients when injection treatment is really indicated in only such a small percentage of the total.

TABLE 12.—*Follow-Up Results of One Hundred and Fifty-Five Patients Treated Longer Than Five Years*

		Symptom free 5 years or longer after treatment with:	
Number of patients treated longer than 5 years	155		
1. Number of patients symptom free 5 years or over	26 (17% of the 155)	(a) Resection	1
		(b) Gastro-enterostomy	6
		(c) Suturing of perforation	1
		(d) Hospital diet-alkali	6
		(e) Ambulatory-diet-alkali	12
(a) Number of patients symptom free 5 years or over and subsequently developed ulcer relapses	15 (60% of the 26)	(a) Resection	1
		(b) Gastro-enterostomy	5
		(c) Hospital diet-alkali	3
		(d) Ambulatory-diet-alkali	6
(b) Number of patients symptom free 5 years or over after treatment of their last attack and still symptom free	11 (40% of the 26)	(a) Gastro-enterostomy	1
		(b) Suturing of perforation	1
		(c) Hospital diet-alkali	3
		(d) Ambulatory-diet-alkali	6
2. Number of patients (included in 1b) who had only one ulcer attack in their lives and still symptom free 5½-7 years later	5 (3% of the 155)	(a) Suturing perforation	1
		(b) Hospital diet-alkali	1
		(c) Ambulatory-diet-alkali	3

INTERPRETATION

The reasons why only certain patients respond to parenteral therapy cannot be stated definitely. One or several explanations may be given. I prefer the first two of the following five:

1. *Psychic Factor.*—I am referring not only to the psychic factor on the part of the patient, to the knowledge that he is getting something "new" and "different" instead of the "same old diet and powders" (so well known to ulcer patients), but more especially to the

psychic elements the physician injects into the patient's mind when he injects the parenteral product into the patient's body. To justify ten, fifteen or twenty-five injections in ten, fifteen or twenty-five alternating or consecutive days, the physician must of necessity inject into the patient's mind that it is a "new" and "good" if not an "excellent" or "superior" method of treatment; "that eminent physicians the world over, abroad and in this country, have published favorable reports of its use," "that shortly after instituting the injection treatment a full diet can be tolerated" and so on. The injection of these and similar ideas into the patient's mind plus the additional encouragement that the patient receives from his physician during the more regular and frequent visits—these to my mind explain more than anything else the favorable results of parenteral therapy when favorable results occur.

2. *The Intermittent Nature of the Disease.*—The life history of ulcer is characterized by symptom-free intervals and relapses (remissions and recurrences). Spontaneous symptom-free intervals are not uncommon. Not all individuals with peptic ulcer are under medical supervision, nor do all patients who know they have

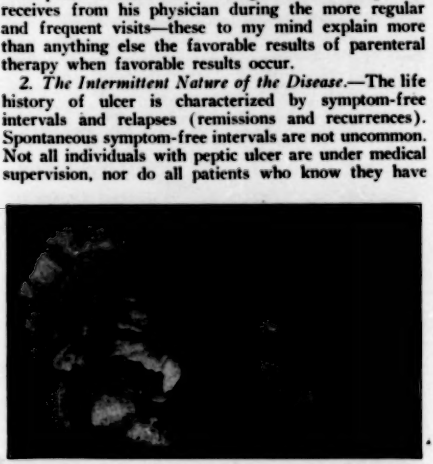

Fig. 3.—Dog died fifty-five days after operation; 112 cc. of larostidin (4,480 mg. of histidine monohydrochloride) had been given. Note depth of ulcer and also site of perforation.

peptic ulcer and who have been previously treated report to their physicians with every relapse they experience. Spontaneous symptom-free intervals may therefore occur during or immediately following parenteral therapy.

3. *A Nonspecific Protein Reaction.*—It is thought that local cellular injury leads to the production and absorption of proteins affecting favorably the chronically inflamed locus (the ulcer) by stimulating leukocytosis, mobilizing immune bodies, dilating capillaries, and the like.

4. *Nonspecific Desensitization.*—It is thought that the effect of parenteral therapy is one of nonspecific desensitization. A number of substances have been demonstrated to have this property.

5. *A Nonspecific Action on the Sympathetic Nervous System.*—This in some way influences the nervous control of the ulcer area, inducing hypomotility and hypoperistalsis.

In reply to a questionnaire sent to the members of the American Gastro-Enterological Association, the majority of opinion seems to favor the view that whatever benefit may accrue to the patient by parenteral treatment is of psychic origin—a change in type of treatment and something different than before.

CONTRAINDICATIONS

Injection treatment should not be given to patients having:

1. Gastric ulcers suspected of malignancy.
2. Ulcers with high grade obstruction.
3. Gastric ulcers prone to hemorrhage or bleeding.

EXPERIMENTAL DATA ON HISTIDINE (LAROSTIDIN): PRELIMINARY REPORT

The Mann-Williamson operation (diverting the duodenum into the terminal ileum, and anastomosing the stomach with the jejunum) produces ulcer in at least 95 per cent of dogs. Weiss and Aron of Strasbourg performed this operation on three dogs. They gave daily injections of histidine and reported that none of the three developed ulcers. Two control dogs, however, did develop ulcers after operation. From this and certain clinical results, Weiss and Aron reasoned that peptic ulcer is the result of histidine deficiency.

Saltzstein, Glazer and I are repeating the experiments of Weiss and Aron. The Mann-Williamson operation has so far been performed on twelve dogs. These dogs received 1 cc. of histidine twice daily (80 mg. per day), starting the day before or within two or three days following the operation.

Six of the twelve dogs have already died. Five showed definite jejunal ulcer, two of them with perforations. (One died twelve days after operation, the others from twenty-nine to fifty-five days after operation.) The sixth dog (death nineteen days postoperatively) showed intense inflammatory changes in the mucosa of the jejunum just distal to the anastomosis, which may be interpreted as early ulcer, though no frank erosion was present. Dr. Plinn F. Morse, pathologist at Harper Hospital, reported the gross and microscopic changes.

Six dogs are still living (from twenty-one to seventy-five days after operation). They all show blood in the stools, loss in weight, intermittent loss of appetite and occasional vomiting. These are the usual clinical signs of ulcer in these animals.

We therefore have not been able thus far to corroborate the original experiment of Weiss and Aron. In our hands ulcers have regularly followed the Mann-Williamson operation though the dogs received daily injections of histidine. This report is only preliminary. The experimental work is being continued. A more detailed report on a larger series of dogs will be given in a subsequent communication.[7]

The accompanying illustrations show the gross appearance and photomicrographs of jejunal ulcers found in Mann-Williamson dogs that have received daily injections of histidine after operation.

SUMMARY

A series of 291 cases were observed during 1,019 ulcer attacks for comparative results obtained with the diet-alkali, parenteral and surgical methods of treatment in peptic ulcer. In ambulatory management the diet-alkali regimen was found satisfactory in 80 per cent of the attacks treated. Private patients, as a whole, respond more satisfactorily to ambulatory diet-alkali management than do clinic patients. Patients with acute ulcers show a higher percentage of symptom-free intervals than do patients with chronic ulcers. The best results were obtained in the private patients with acute ulcers. In the chronic group parenteral therapy

7. Sandweiss, D. J.; Saltzstein, H. C., and Glazer, W. S.: The Value of Histidine in Prevention of Experimental Ulcer in Dogs, Am. J. Digest. Dis. & Nutrition, to be published.

was of value when patients failed to respond to diet-alkali management. In this group, parenteral therapy has its chief value as an additional method of treatment. The psychic factor, I feel, is greatly responsible for the favorable results when they occur. Hospital bed rest, when finances permit, produces the best results in chronic cases. Surgical treatment, though producing good immediate results, does not surpass those of other methods, all of which have a high percentage of relapses.

CONCLUSIONS

1. Approximately 90 per cent of the patients with ulcer attacks treated in private practice became symptom free after careful dietetic-alkali management, compared with approximately 75 per cent of remissions obtained in the charity clinic groups. Greater financial worries, lack of cooperation, social maladjustments, and improper and perhaps insufficient food probably explain the lower percentage of remissions in the clinic series. In the latter group environmental difficulties and inner emotional conflicts were frequently present and difficult to relieve.

2. Of those who were given parenteral injections after failure to respond to the diet-alkali regimen, approximately 60 per cent became symptom free after injections of either stock respiratory vaccine, larostidin or synodal. In twenty-two patients, injections of distilled water were used. Comparable results have been obtained.

3. In my opinion it is not the histidine in larostidin or the emetine in synodal or the dead bacteria in vaccines that produce remissions in these cases. Approximately only half become symptom free. Also, injections of distilled water produced similar results. Remissions produced may be explained as psychic effects, added confidence in "something new" instead of the "same diet and powders" (so well known to ulcer patients), greater encouragement due to more frequent visits to physician or nurse as well as persistence in treatment.

4. Some patients do not respond to any form of medical therapy. When, however, the tensional states of these patients are relieved (environmental difficulties or emotional conflicts) an almost miraculous response occurs at times even without any other form of treatment. "Management of the patient" in addition to "treatment of the ulcer" must be stressed. Tensional states to my mind deserve greater attention than the ulcer per se, unless complications intervene.

5. Most of the patients treated in this series returned with recurrences of symptoms after treatment with one or another or several of the methods described. When remissions were produced by treatment, the symptom-free interval was longest after diet-alkali treatment. The short duration of remissions and the high percentage of recurrences after parenteral therapy probably result because of more rapid increase in diet. The patients on diet-alkali management were schooled in the essential dietetics of their treatment; those treated with the parenteral method were not so educated, had a more liberal diet and suffered early recurrences.

6. When a symptom-free interval results (with or without parenteral therapy) a restricted diet must be continued. The patient thereafter should be periodically observed and periodically reinstructed as to "what to eat, how to eat and how to live." This may tend to delay relapses and prevent complications. Attention should then also be given to coexisting disorders, as definite foci of infection, mild hyperthyroidism, tensional states, and so on.

7. Of 155 patients treated (medically and surgically) and observed longer than five years, only five (3 per cent) are still symptom free from five and one-half to seven years after their first and only ulcer attack. This speaks unfavorably for the lasting benefit to be derived from any form of ulcer therapy. It appears that, at the present state of our knowledge, all we can hope to accomplish and should aim for are: (*a*) to relieve symptoms, (*b*) to delay relapses and (*c*) to prevent complications.

8. The parenteral method is not indicated in the routine treatment of peptic ulcer. It may be used only in those patients not responding to the diet-alkali regimen and only in association with but not in place of the usual bland diet. There is only slight difference between the results obtained by the injections of the various products mentioned. If one product fails to produce a remission, another may be tried. At present there is no parenteral product specific for peptic ulcer.

Fig. 4.—Section of ulcer in figure 3.

9. Since we have been using the parenteral method of treatment fewer patients have been hospitalized for medical bed rest treatment and still fewer patients were operated on. We now hospitalize only those patients who have hemorrhages, high grade obstruction, penetrating ulcers, perforation or gastric ulcers suggestive of malignancy. Such patients should not be given injections.

10. We (Sandweiss, Saltzstein and Glazer) have been unable, thus far, to corroborate the experimental work of Weiss and Aron of Strasbourg that injections of histidine (larostidin) protect dogs from peptic ulcer following surgical duodenal drainage (Mann-Williamson operation).

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ABSTRACT OF DISCUSSION

DR. A. F. R. ANDRESEN, Brooklyn: It is time that something should be done to check the exploitation of the doctor and his patients by pharmaceutical houses advocating parenteral injections of various unproved medicaments, intragastric and intraduodenal instillations of modified foods or of alkalis or alkaline earths, and the oral administration of noxious substances or freak combinations. Three experimental researches of fundamental value in the approach to the ulcer problem have

been overlooked or neglected. By the combination of the knowledge obtained in these studies, physicians can arrive at a satisfactory solution to most problems in the care of ulcer patients. I refer first to the work of Fenton B. Turck, who demonstrated the experimental production in dogs of ulcers typical of human gastric ulcer following the intravenous injection of extracts of dead tissue. He gave the name of cytost to the substance he felt was responsible for producing the area of focal necrosis causing the ulcer. Later Rosenow demonstrated the relationship between focal infection and ulcer, which has been so conclusively confirmed by clinical experience, although actual migration of bacteria from focus to stomach is questionable. Perhaps the cytost absorbed from the dead tissue in the focus is the etiologic factor, or perhaps allergy is the explanation. Thirdly, Cole's researches into the life history of ulcer have demonstrated that single gastric ulcers are not due to erosion of the mucosa but start like boils beneath the mucosa and break outward through it, that they heal spontaneously and rapidly and that recurrent attacks of ulcer symptoms are due to new ulcers. Intractable ulcers are complicated ulcers which have perforated or nearly perforated and which

Fig. 3.—Dog died forty-five days after operation; 79 cc. of larostidin (3,160 mg. of histidine monohydrochloride) had been given. Jejunal ulcer perforated into small intestine.

cause cicatrices, exudates or adhesions with resulting deformities. Such ulcers produce persistent symptoms and frequently require surgical treatment or they may be malignant ulcers from the start, showing no tendency to heal and requiring early operation. A simple ulcer requires only palliation of its symptoms and removal of all possible causes to prevent occurrence of future ulcers.

Dr. Sara M. Jordan, Boston: The treatment of ulcer cannot be considered from the etiologic basis because physicians are not united as to the etiology. There isn't enough information to give any firm foundation on that, but a therapy can be adopted that is based on logical, if not on etiologic, grounds. The purposes of treatment of ulcer are twofold: (1) to promote complete healing and (2) to prevent recurrences, to maintain that complete healing. How is complete healing promoted? Physiologic studies, which Ivy has reported so often, indicate that there are two things to combat, spasm and acid. Spasm is combated by rest, diet and the omission of irritants, and by something else which people call psychotherapy and which, in lieu of a better word, may continue to be called that. Acid is combated by all those measures, rest, diet and psychotherapy, plus some chemical aid. Where does larostidin fit into this picture? It certainly does not give the patient rest or make any changes in the diet. Does it influence the psychotherapy? Physicians who have had the same experiences as I have often come to an impasse with the patient. One comes to the point at which the patient is not doing well and one of two things, from the psychotherapeutic point of view, is necessary; either one reviews the whole situation and stresses the necessity of continuing the present treatment and doing it still more carefully, or one introduces some new element into the therapy. I suspect that the cases in which larostidin has helped have been those cases. In my limited experience I have found it an adjuvant in relieving intractable pain temporarily, but temporarily only. I believe that has occurred because it introduces some new element into the psychotherapy of the situation. I do not believe that it maintains complete healing or has anything to do with that, and unless these ulcer patients can be segregated or transported into some ulcer-proof world, which is impossible, one will have to continue to combat spasm and acid as long as that patient lives, because the life history of the ulcer ends only with the life history of the individual.

Dr. George B. Eusterman, Rochester, Minn.: Treatment of any disease in which knowledge of etiology is still lacking or incomplete is necessarily empirical. Biologists explain that there are intrinsic and extraneous factors operative in the genesis of disease. The intrinsic, that is, the hereditary or constitutional, factor is not under control, and the extent of the rôle it plays other than conditioning the organ system to be involved is not measurable. The extraneous factors are to a large extent controllable under proper circumstances. Ulcer is essentially a disease of civilized people and is of psychosomatic nature. Infection, trauma and certain toxic or irritant products at times play a direct, prominent rôle, but such factors per se do not explain the genesis of the great majority of the lesions. Physicians are prone to consider too exclusively the extraneous factor. If the experiences of the past are any criterion, parenteral methods of treatment which have been and are now in vogue are doomed to fail. The *raison-d'être* for the choice of ingredients employed rests on a highly theoretical basis. Any form of treatment that is so simple and which requires so little self discipline on the part of the patient would appeal to the majority of physicians and certainly to the patient himself. I freely predict that the problem is not such an easy one. Treatment with larostidin, for example, occasionally produces a gratifying result in patients ineffectively or incompletely treated by other methods. I have not had an opportunity to follow such cases long enough to determine how permanent the results will be; but such occasional good results would not move me to advocate the adoption of any particular parenteral method of treatment to the exclusion of the orthodox method thoroughly and intelligently carried out. While experimental research has added much to our knowledge concerning various phases of ulcer, I doubt whether it has solved the riddle of the actual genesis of the disease in man. In the elucidation of therapeutic problems, however, observations on animals with experimentally produced chronic peptic ulcer have been made. On the basis of a procedure carried out by Reed and Ivy with gastric mucin as a prophylaxis in dogs receiving toxic doses of cinchophen, Stalker of the Mayo Foundation (unpublished data) investigated the therapeutic value of various preparations in a large number of dogs. All the control dogs developed chronic cinchophen ulcer indistinguishable from ulcer in man in an average of thirty days. Fifty per cent of the dogs getting mucin in the same manner and comparative amount that it is given to patients developed an ulcer. Every dog getting milk alone developed an ulcer but not a severe one. Dogs receiving larostidin developed a typical chronic ulcer in every instance. In not a single dog on the diet-alkali regimen did a chronic ulcer develop.

Dr. Italo F. Volini, Chicago: I wish to present some evidence as to the benefit of histidine in the treatment of peptic ulcer. I have promulgated the histamine theory in the production of peptic ulcer on the following evidence: 1. Stomach ulcers can be produced in rats by the injection of histamine. 2. Histaminase, the enzyme that destroys histamine, is absent in the stomach area where gastrin (histamine) is produced in greatest concentration. 3. Histamine injections used in diagnosis aggravate ulcer symptoms. 4. Early in the treatment with larostidin, symptoms may be exaggerated because increased histidine content available can be transformed into

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histamine without rapid destruction of the latter. Histamine produces severe arteriolar spasm, profound capillary vasodilatation and increased capillary permeability. This action is seen best in urticaria produced by the H substances of Lewis. Histamine stimulates gastric secretion, increasing the acid and water content in addition to producing increased motor activity. Histidine is transformed into histamine by the removal of carbon dioxide. Histidine injections may stimulate production of the histaminase. Histaminase destroys histamine. Histaminase action is demonstrable in patients treated with histidine by: A. The effect on the gastric secretion. There is a decrease in both the amount and the acidity titer in fasting and histamine stimulated gastric juice. The repeated or second histamine injection shows this decrease in the larostidin treated ulcer but not in (1) the normal individual, (2) the untreated ulcer patient, (3) the alkali treated ulcer or (4) the Pavlov pouch secretion juice in the dog. B. The marked sedative effect on gastric motility demonstrated by kymographic tracings of stomach contractions in the larostidin-treated ulcer patients. C. The favorable response of urticarial lesions and hay fever symptoms to histidine injections, which occurs in many cases. I assume that these and other allergic and anaphylactic reactions are due to histamine or histamine-like substances. Theoretically, histaminase production which destroys histamine rapidly should ameliorate these syndromes.

DR. RUSSELL S. BOLES, Philadelphia: In the discussion of Dr. Jordan's paper I suggested the possibility of peptic ulcer being a form of peripheral vascular disease. I am impressed with the work of Dr. Sandweiss and I do not believe the results should be too abruptly attributed to a psychotherapeutic effect. Histidine likewise has a definite vasodilating action. Bismuth subcarbonate when given orally becomes bismuth subnitrate and recently has been advocated in the treatment of hypertension because of its vasodilatating effect. I can thus see the possibility of an explanation of Dr. Sandweiss's results in that histidine, acting as a vasodilator, may bring about a hyperemia in the ulcer-bearing area and thereby an improvement in the ulcer symptoms. Certainly, as Dr. Esterman has said, the orthodox treatment is fundamental. Dr. Jordan says "there are ulcers and ulcers." That is true. Ulcers in early life may reasonably be due to thrombosis of infectious etiology and as such may heal even despite various methods of treatment; other ulcers later in life may be of purely arteriosclerotic origin and as such are more refractory to treatment. I don't believe there is one of us who doesn't prohibit the use of tobacco in ulcer patients. Why is the use of tobacco harmful in ulcer? Is it because of the effect on secretion? Tobacco is a powerful vasoconstrictor and, by prohibiting it, we probably allow a certain amount of normal vasodilatation to take place at the site of the ulcer. Hypotension, as Dr. Gorham said, exists in many of these cases but that does not preclude their having arteriosclerosis or other vascular disease. It is possible that the author's results may be due to the relaxation of the arterial spasm that probably exists in ulcer cases.

DR. JOHN H. FITZGIBBON, Portland, Ore.: Several years ago a patient whom I was treating for ulcer on Sippy management came to the office with a syphilitic rash. He was referred for treatment to a man who gave him rather intensive treatment and a few weeks later returned to me asking if I thought it necessary for him to take alkali while he was receiving the neoarsphenamine injections. I asked "Why not?" He said "I have no free hydrochloric acid in my stomach following these injections." He was aspirating his stomach every night and testing for acid. As I had never heard of such an effect from neoarsphenamine, I checked up his statement. Following every injection of neoarsphenamine he was free of hydrochloric acid for a few days. I discussed the matter with the department of physiology at the medical school of the University of Oregon and Dr. Wilmot Foster started work on the problem. A series of dogs with pouches were examined. Following varying doses of neoarsphenamine, rather interesting observations were made. It was found that both the amount of secretion and the chloride content decreased in proportion to the amount of neoarsphenamine injected. Regarding the general treatment of ulcer, I think that any physician in practice long enough to have many failures realizes that the treatment of ulcer consists of two parts: first, healing the ulcer or removing it; second, a lifelong effort to prevent recurrence. The injection of greatest value in the treatment of peptic ulcer is injection of common sense and conservatism, using hobbies and pet tricks when desired but accompanying them with the good old standardized and conservative methods that have been proved to be of value for so many years.

STATUS OF CHOLECYSTOGASTROSTOMY IN OBSTRUCTIVE JAUNDICE

DUE TO CARCINOMA OF THE HEAD OF THE PANCREAS

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In order to evaluate the results of biliary intestinal anastomosis, particularly in cases of carcinoma of the head of the pancreas, a study was made of thirty-four surgically treated patients who were in the ward services during the ten years between 1926 and 1935.

These patients were operated on because of jaundice. Their ages varied between 24 and 70 years, the average age being 50. The incidence of male and female patients was as 6 to 1; i. e., twenty-nine men and five women. The history was usually one of slowly increasing, painless, obstructive jaundice with pruritus, weakness and loss in weight. The preoperative diagnosis was carcinoma of the head of the pancreas or carcinoma of the common bile duct below the cystic duct or carcinoma of the ampulla of Vater.

DIAGNOSIS AT OPERATION

In thirty patients the diagnosis at laparotomy was carcinoma of the head of the pancreas. In four patients the diagnosis was as follows: carcinoma of the common bile duct one case, carcinoma of the ampulla of Vater two cases, and stricture of the common bile duct following a previous duodenotomy and resection of a carcinoma of the ampulla of Vater one case. All the patients had a suture cholecystogastrostomy performed except the latter patient, in whom a choledochoduodenostomy was done.

In all the cases the gallbladder was noted at operation to be tense or distended, and in only one case was a stone present in the gallbladder. These observations are confirmatory of "Courvoisier's law."

ERRORS IN OPERATIVE DIAGNOSIS AND INDICATION

Of the thirty cases diagnosed as carcinoma of the head of the pancreas at operation, all with the exception of five were found to show this condition, or carcinoma of the common bile duct below the cystic duct or carcinoma of the ampulla of Vater. These five cases presented the following conditions: (1) cirrhosis of the liver, (2) subacute yellow atrophy (postmortem examinations following operation), (3) carcinoma of the stomach with liver metastases (found at later postmortem examination), (4) hepatosplenomegaly and (5) chronic pancreatitis (subsequent clinical diagnoses). The operation of cholecystogastrostomy was probably not indicated on the basis of the subsequent examination in the first four of the aforementioned cases. This is a percentage error for the operation of 13.3.

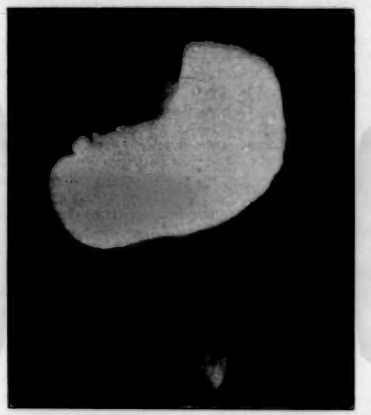
During the past year in doubtful cases of obstructive jaundice in which the lesion is thought to be in the head

From the Surgical Services of Dr. Edwin Beer and Dr. Ralph Colp, the Mount Sinai Hospital.

of the pancreas, punch biopsy or small incisional biopsy has been performed with immediate frozen section examination by the pathologist. This has been done with the idea that perhaps an early obstructing carcinoma of the pancreas may be recognized and resected in two stages, as recommended by Whipple, Parsons and Mullins[1] for the treatment of carcinoma of the ampulla of Vater. With punch biopsy of the liver the differentiation between hepatitis and carcinoma of the head of the pancreas also may be made, together with other conditions found at operation, such as a collapsed gallbladder and a nondilated common duct.

POSTOPERATIVE MORTALITY AND CAUSES OF DEATH

There were fifteen postoperative deaths in the thirty-four surgical cases, or a mortality of 44.1 per cent. Since two patients were found not to have a carcinoma of the pancreas or of the lower end of the common bile duct post mortem, the mortality for the operation in malignant cases was actually 41.3 per cent, or thirteen deaths in thirty-two operations.



Air present in the biliary system noted after ingestion of barium sulfate meal

The causes of death were as follows: hemorrhage six cases, pneumonia two cases, and one case each of coronary artery disease, cholemia, shock, streptococcic meningitis, and intestinal leak. The latter case was the aforementioned choledochoduodenostomy for stricture of the common bile duct following a transduodenal resection of the ampulla of Vater. In this case there was no evidence of recurrent or metastatic carcinoma post mortem, one year after the primary operation.

Of the thirty patients who were thought to have carcinoma of the head of the pancreas at laparotomy, eleven died after operation, or a mortality of 36.6 per cent. Necropsy was performed on eight of the eleven patients. Four were found to have carcinoma of the head of the pancreas with either a single metastasis or multiple metastases. The presence of metastases to the liver and other organs occurred in spite of the fact that the duration of symptoms, particularly jaundice, was short—from four to six weeks. The remaining four necropsies showed the following: (1) carcinoma of the common bile duct, (2) carcinoma of the ampulla of Vater, (3) cirrhosis of the liver and acute cholecystitis and (4) subacute yellow atrophy. As previously mentioned, the latter two conditions represent errors in the operative diagnosis and indications. Of the three patients who were not examined post mortem, one showed metastases on x-ray examination of the lungs.

FOLLOW UP: DURATION OF LIFE AFTER OPERATION

Nineteen patients in whom an operative diagnosis of carcinoma of the head of the pancreas was made were discharged from the hospital. Two of these patients were immediately lost from observation. Of seventeen patients with a partial or complete follow-up record, fourteen were known to be dead. All died between three months and one year following operation, except one patient who lived three and one third years. This patient, who was examined post mortem at another institution, was reported to have died of carcinoma of the stomach with liver metastases. The average postoperative duration of life in carcinoma of the head of the pancreas was seven months. This closely compares with the recently reported statistics of Judd and Hoerner (10.2 months)[2] and of Eliason and Johnson.[3]

Of the fourteen patients known to be dead, only five were examined post mortem. Three were found to have carcinoma of the pancreas, one carcinoma of the ampulla of Vater and the fifth patient carcinoma of the stomach with liver metastases.

Two patients were followed for eight months and then lost sight of. One of these cases, however, was probably not malignant, because on subsequent admission to the hospital the patient was thought to have hepatosplenomegaly. Of the three patients not known to be dead, only one is known to be alive. He has lived for twenty-six months after operation. At this time it is believed that he did not have carcinoma of the pancreas but probably was suffering from a chronic pancreatitis at the time of operation.[3a]

COMPLICATIONS

Cholangeitis.—The question of cholangeitis following biliary-intestinal anastomosis is a moot point. Some observers, notably Wangensteen,[4] Roeder,[5] Mason and Baker,[6] Graham and his associates[7] and many others have reported its occurrence as a great handicap to the operation. Other observers, as Kehr,[8] Bernhard,[9] and Mayo-Robson,[10] have found cholangeitis a frequent

1. Whipple, A. O.; Parsons, W. B., and Mullins, C. R.: Treatment of Carcinoma of the Ampulla of Vater, Ann. Surg. 102: 763-779 (Oct.) 1935.

2. Judd, E. S., and Hoerner, M. T.: Surgical Treatment of Carcinoma of the Head of the Pancreas and of the Ampulla of Vater, Arch. Surg. 31: 937-942 (Dec.) 1935.

3. Eliason, E. L., and Johnson, J.: Life Expectancy in Biliary Intestinal Anastomosis, Surg., Gynec. & Obst. 62: 50-56 (Jan.) 1936.

3a. Since this communication was submitted for publication this patient died, twenty-nine months after cholecystogastrostomy. Necropsy disclosed a carcinoma of the head of the pancreas infiltrating the duodenum, causing stenosis. No metastases were present. The cholecystogastrostomy stoma was patent. There was no evidence of cholangeitis or hepatitis. A detailed description of this case will be published by Dr. Oppenheimer under the title "Prolonged Survival Following Cholecystogastrostomy for Obstructive Jaundice Due to Carcinoma of the Head of the Pancreas."

4. Wangensteen, O. H.: Cholangeitis Following Cholecystenterostomy, Ann. Surg. 87: 54-65 (Jan.) 1928.

5. Roeder, C. A.: Modified Cholecystogastrostomy, Ann. Surg. 94: 311-313 (Aug.) 1931.

6. Mason, J. T., and Baker, J. M.: Cholecystogastrostomy; Autopsy Two Years Later, S. Clin. North America 11: 1103-1110 (Oct.) 1931.

7. Graham, E. A.; Cole, W. H.; Copher, G. H., and Moore, Sherwood: Diseases of the Gallbladder and Bile Ducts, Philadelphia, Lea & Febiger, 1928, p. 443.

8. Kehr, H.: Chirurgie des Gallenwege, Neue deutsche Chir. 8: 676-689, 1913.

9. Bernhard, F.: Die Fruch und Spaetergebnisse der Cholecystogastrostomie, der Cholecystoduodeno und Choledochoduodenostomie bei 128 Faellen, Deutsche Ztschr. f. Chir. 242: 736-756, 1934.

10. Mayo-Robson, A. W.: Certain Forms of Jaundice Capable of Relief or Cure by Surgical Treatment with a Consideration of Cholecystenterostomy Based on an Experience of 64 Cases, Lancet 1: 371-374, 1909.

complication but not enough to prevent them from performing the operation. Babcock,[11] DuBose[12] and Finsterer[13] have not seen cholangeitis in their series. Gentile[14] has recently reported some interesting experiments, from which he concludes that cholangeitis does not follow cholecystogastrostomy in dogs.

It would appear from a survey of the literature that cholecystogastrostomy is less liable to be followed by liver infection than cholecystoduodenostomy.

In none of the nineteen patients in this series was the complication of ascending infection evident either from the clinical course or from later postmortem examination. Interesting in this connection are the repeated roentgenograms of the patient with a probable pancreatitis.[2a] A complete visualization of the biliary passages by gas from the stomach was present on several examinations, and yet this patient did not present evidences of cholangeitis.

There was one other patient not previously mentioned in whom the operation of cholecystogastrostomy was performed for persistent symptoms thought to be due to a chronic pancreatitis following a biliary peritonitis of unknown etiology. Three years later the anastomosis, which was small but patent, was disconnected and a cholecystectomy was performed. There was no evidence of cholangeitis in this patient.

Stenosis of Stoma.—This complication was not found in any of our patients. Complete closure or stenosis may occur, however. Beer[15] found a complete closure in one case and an inflammatory stenosis in another. Parsons,[1] in his discussion on the radical treatment of carcinoma of the ampulla of Vater, describes a marked stenosis of a cholecystogastrostomy stoma due to subsequent contraction of a distended gallbladder.

It should be noted that, while closure or stenosis of a cholecystogastrostomy stoma can occur in the presence of a patent common bile duct,[16] it is obviously less likely to follow if the common duct is obstructed by a malignant condition or by operative ligation and section.

BENEFITS OF OPERATION

Of seventeen patients who survived operation and who were either partially or completely followed, ten were temporarily benefited by the operation, three were questionably benefited and four were not benefited. By benefited we mean decrease or disappearance of jaundice, loss of pruritus and pain, and gain in weight and general well being. In at least two patients in whom jaundice disappeared it reappeared later on.

INDICATIONS FOR CHOLECYSTOGASTROSTOMY

In general, the operation should be performed when there is a nonremovable obstructive lesion of the common bile duct below the cystic duct.

When the lesion is nonmalignant, as for instance obstruction due to stone or chronic pancreatitis, the anastomosis is compatible with life as attested by a large number of reports in which patients lived from three to thirty years.[17] While a cholecystostomy or choledochostomy may temporarily save a patient in the face of a constant nonmalignant obstruction, the discomforts and dangers of a biliary fistula are well known and are obviated by cholecystogastrostomy.

As a palliative procedure for carcinoma of the head of the pancreas or carcinoma of the ampulla of Vater, it is indicated because approximately 60 per cent of the surviving patients are temporarily benefited by being relieved of their icterus. It is also indicated because in a certain number of cases the differential diagnosis between a malignant and a nonmalignant obstruction cannot be made at operation. However, in the malignant cases the benefits of the operation are not of very long standing, since almost all patients die within one year, and usually within seven months. The operation should be performed in malignant cases in preference to cholecystostomy or choledochostomy because of its lower mortality, as shown by Cohen and Colp[18] in a study from this institution.

If an attempt at radical operation is made, the cholecystogastrostomy should be performed as a first stage procedure together with a gastro-enterostomy and ligation and division of the common bile duct below the cystic duct preparatory to removal of the head of the pancreas and adjacent duodenum for carcinoma of the ampulla of Vater, as suggested by Whipple, Parsons and Mullins.[1] This procedure should be performed, too, for an early carcinoma of the head of the pancreas. Concerning the latter, a discouraging feature is that metastases were already present in the cases of this series and in an early case reported by one of us,[19] even though the symptoms were of short duration.

941 Park Avenue.

11. Babcock, W. W.: Cholecystogastrostomy and Cholecystoduodenostomy, Am. J. Obst. & Gynec. **1**: 854, (May) 1921.
12. DuBose, F. G.: Cholecystogastrostomy and Cholecystoduodenostomy, Surg., Gynec. & Obst. **39**: 295-302 (Sept.) 1924.
13. Results of the Operation for Gallstones, Vienna letter, J. A. M. A. **104**: 1353-1354 (April 13) 1935.
14. Gentile, Antonio: Cholecystogastrostomy and Hepatitis: An Experimental Study, Arch. Surg. **30**: 449-473 (March) 1935.
15. Beer, Edwin: Personal communication to the authors.
16. Nazarov, N. N., quoted by Eliason and Johnson.[3]
17. Table 3 in Eliason and Johnson.[3]

ACUTE AXIAL TORSION OF THE FIBROMYOMATOUS UTERUS

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Occurrence of torsion in the fibromyomatous uterus is sufficiently rare and the complications are of such gravity that it would seem wise to report even a single new case. A survey of the literature reveals very few reports from this continent and no exhaustive work since the report of Peightal[1] in 1929.

REPORT OF CASE

Miss G. S., a nullipara, aged 34, admitted March 1, 1936, complained of "severe pain in the abdomen" of one week's duration. The cramplike pain developed in the right lower quadrant of the abdomen and felt like a weight pulling down. This pain was similar to, but more severe than, the pain she had been experiencing the past three years prior to her menstrual periods. The menstrual history had been quite normal and regular until the month previous to admission. At the time of the onset of the pain the menses were seventeen days past due.

The Wassermann reaction was negative. Urinalysis was negative. White blood cells numbered 13,050. Coagulation time was three and one-half minutes.

On physical examination the patient was well nourished and rather obese. There was a general spasm and rigidity of the abdominal wall, which was more marked in the right lower quadrant. The uterus could not be distinctly outlined because of tenderness and rigidity in an obese abdomen. A diagnosis of an acute appendicitis was tentatively made and the patient was prepared for immediate operation.

Through a midline suprapubic incision a small amount of blood-tinged fluid escaped. When the peritoneum was opened

18. Cohen, Ira., and Colp, Ralph: Cancer of the Periampullary Region of the Duodenum, Surg., Gynec. & Obst. **45**: 332-346 (Sept.) 1927.
19. Oppenheimer, G. D.: Acute Obstruction of the Duodenum Due to Submucous Haematoma, Ann. Surg. **98**: 192-196 (Aug.) 1933.
1. Peightal, T. C.: Am. J. Obst. & Gynec. **17**: 363 (March) 1929.

the appendix was found to be normal in appearance except for some old adhesions. Arising from the pelvis and extending into the right side of the abdomen was a reddish blue, tense mass having the consistency of a cyst rather than being firm like a fibroid tumor. This tenseness later was found to be due to edema, which was quite marked. The mass was a fibromyomatous uterus measuring 5 by 9 by 7 cm. The uterus, owing to the shape, size and location of the tumor, was twisted through a 60 degree angle at the isthmus. The fibromyoma was subserous and was in the right cornu, showing a large base that extended down into the muscle. The uterus was twisted toward the right and posteriorly, carrying the right round ligament and the base of the tube posteriorly and the left ligament and tube anteriorly. The tumor along with the congestion distorted the appearance of the uterus. Because of the existing pathologic condition a hysterectomy was performed and a simple appendectomy done.

The pathologic diagnosis was myofibroma of the uterus with several intramural nodules, in the midmenstrual phase.

The patient had an uneventful convalescence and was discharged March 15.

LITERATURE

The first record of torsion of the uterus was made in 1861 by Times of England. Since then there has been a gradual increase in the number of cases reported

The corpus uteri (*A*) is twisted at the isthmus through 60 degrees clockwise. The fibromyoma is shown posterior to the uterus. *B*, bladder. The left broad ligament, left tube and left ovary (*C*) have been pulled anteriorly with the right broad ligament (*D*) disappearing posteriorly.

in the foreign literature, with a few detailed studies reported in this country. Approximately 143 cases of axis torsion of the fibromyomatous uterus have been reported to date. We have been able to collect nine cases of torsion of a fibroid uterus reported in the United States, many more, however, being reported in other countries. Many errors in reports of the total numer of cases may be explained by the fact that some authors exclude cases when pregnancy is associated while others include all types of axis torsion.

ETIOLOGY

Axis torsion of the uterus occurs more frequently in women over 40 years of age. The oldest patients on record are those of Bland Sutton,[2] Griffith and Semmelink, being 70 years of age.

The location and the size of the tumor have a direct bearing on the torsion. Most specimens show a fibromyomatous tumor weighing more than 2 Kg., the average weighing 5 Kg. The interstitial tumors are more prone to cause torsion if their location is in one cornu or at least away from the midline of the uterus. It is quite evident that the leverage force is in this way eccentrically placed and increases the likelihood of torsion.

The true cause for rotation of the uterus has not been clearly decided. Piquand[3] and Vautrin point out that the left lumbosacral fossa is well filled with the sigmoid colon, whereas the right is empty, and with the growth of the fibroid tumor associated with the rise of the uterus in the pelvis the uterus falls toward the empty side. Only thirteen times in eighty-four cases was the torsion from right to left in one author's study. The acute torsion is probably due to some external force or to sudden muscular effort. Once the accident of torsion has occurred, the abdominal wall will supply enough spasm to increase the intra-abdominal pressure to the point of maintaining the error.

The point of torsion is fixed, occurring as a rule at the level of the uterine isthmus. The elongation of the isthmus may be so pronounced as to reduce this region to almost a cord. Mengert[4] has shown in his study of factors influencing uterine support that the ligaments above the uterine isthmus do not play a major rôle. The round and ovarian ligaments do not exert a great resistance to the mechanism of torsion, owing to gradual stretching with the growth of the fibroid.

SYMPTOMS

The clinical signs and symptoms must be considered from two points of view, depending on whether the torsion is acute or is a slow progressive, chronic procedure.

Patients with acute torsion present the general picture of distress comparable to strangulated hernia, to ruptured ectopic pregnancy or to a twist of the pedicle of an ovarian cyst. The onset is sudden, severe and dramatic, without prodromal signs, producing severe intense pain in the lower part of the abdomen, progressing to pallor and shock. After a few hours these signs and symptoms become less acute, only to return accompanied by a rise in the temperature curve, as evidence of some absorption from the tissue involved in the edematous and ischemic area.

During this short quiescent interval there are a number of valuable physical signs that may be elicited in an effort toward diagnosis of this sometimes called acute condition of the abdomen.

Bimanual examination will reveal the fibromyoma closely associated with the uterus, the entire mass being very firm, and manipulation will cause extreme pain. The cervix is usually found to be high in the vaginal vault and has been reported by some authors as being difficult to reach. All writers on this subject have thoroughly emphasized the fact that it is impossible to pass a catheter into the uterine cavity, and this is an excellent diagnostic sign. Few gynecologists would attempt the latter diagnostic procedure in the presence of acute torsion, for the patient is usually in a grave condition and surgical intervention is definitely indicated; however, this is a great aid in chronic torsion of the uterus.

Symptoms present in chronic torsion vary with the method in which the complication occurs. From a study of reports and histories given by these patients it seems most common for symptoms to come and go with free

2. Sutton, J. B.: Lancet **2**:1132, 1911.

3. Piquand, G., and Lemeland, L.: Rev. de gynéc. et de chir. abd. **13**:337, 1909.

4. Mengert, W. F.: Am. J. Obst. & Gynec. **31**:775 (May) 1936.

intervals of varying length, finally to terminate in an acute form. Menstrual disturbances are common with encroachment on the cervical canal even blocking it, causing hematometra, progressing finally to pyometra. Sounding of the uterine canal will clinch the diagnosis. Bladder symptoms may or may not be present, depending entirely on displacement of the neighboring viscus by the tumor in the process of torsion.

DIFFERENTIAL DIAGNOSIS

It is quite significant to note in our survey of the literature that diagnosis prior to operation has seldom been made of axis torsion of the fibromyomatous uterus. The most common diagnoses made preoperatively are ectopic pregnancy, twisted ovarian cyst, appendicitis, adnexal disease and intestinal obstruction.

Elimination of ectopic pregnancy, salpingitis and appendicitis may be aided by the recognition of a tumor, tender, movable and not in the flank, along with absence of chocolate colored blood in the fornices and a clear culdesac. Successful colonic irrigation and a gradual cessation of vomiting will aid in ruling out intestinal obstruction.

TREATMENT

Attempts have been made to reduce the axis torsion manually, but this is seldom successful and is frowned on by most authors.

Hysterectomy is usually done in both acute and chronic forms of torsion. Subtotal hysterectomy is preferred because these patients are acutely ill and additional trauma is ill advised. The vessels of the broad ligament will be found to be tremendously hypertrophied and, along with edema and the early gangrenous process, may cause concern with hemorrhage. Very careful ligation of these vessels well beyond the area of any thrombosis is strongly advised.

This accident usually happens from the third to the fourth month of gestation when it occurs in pregnancy. Careful myomectomy here is usually practiced.

PROGNOSIS

A very few cases may undergo a spontaneous reduction, but certainly these are exceedingly rare. Piquand reported eight untreated cases and six deaths, an approximate mortality of 75 per cent. He also reported sixty-three cases presenting operative intervention, showing in this group a 10.5 per cent mortality. Other writers' figures further emphasize the gravity of torsion of the uterus, but acute cases given the benefit of surgery recover from symptoms of shock at onset and show a mortality rate practically that from hysterectomy.

PATHOLOGY

Generally it may be stated that the pathologic condition found in the fibromyomatous uterus, the adnexa and the surrounding organs is much the same, presenting a picture of circulatory damage, the degree depending on the extent of the torsion.

The average cases show a turn of 180 degrees; however, Wertheim and others report torsions of 300 degrees and more. Venous stasis is usually complete with only partial arterial obliteration, and this causes extensive edema of the uterus and tumor. Lymphatic infiltration along with many cystic spaces, the latter due to separation of the muscular and fibrous elements, will be noted in microscopic section. The uterine cavity contains blood developing into a pyometra. As the process continues one sees development of necrosis.

DIFFUSE ADENOMATOSIS OF THE COLON

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Diffuse adenomatosis of the colon as a distinct clinical entity has been recognized for many years, but the histopathology revealing its malignant tendency has been a more recent contribution and has done much to alter modern views with regard to treatment. Menzel is credited by Warwick [1] as having first called attention to the disease as such in 1721, and in 1832 Wagner [2] described a condition which is now recognized as polyposis. Rokitansky in 1839 and Lebert in 1861 contributed to the knowledge of the condition. Luschka in the same year reported a case in which a woman, aged 30, was found to have thousands of polypi in the colon. "Colitis polyposa" was used by Virchow [2] in 1863 in describing the lesions.

The tumors are usually multiple and widely distributed, often extending from the anus to the cecum, but having a tendency to appear approximately eight times more frequently in the rectosigmoid and rectum than in any other section of the colon. This is particularly significant in the light of the similar occurrence and ratio of distribution of carcinoma of the colon and immediately suggests a relationship. Pathologic studies of large segments or the complete colon secured by surgical removal have supported this suspicion, and adenomatosis of the colon can no longer be considered an unusual entity of relatively minor importance but one demanding prompt attention and eradication.

Through the years, added bits of information have sealed the verdict for effacement. Cripps, Lockhart-Mummery [3] and Cuthbert Dukes were among those to make noteworthy confirmatory contributions. They noted the occurrence of the disease in several members of the same family and suggested a familial tendency or hereditary factor. Their observation has been repeatedly sustained by various investigators and conforms with our experience. Two of our last three patients reported two members in each family similarly affected with a definite diagnosis established by proctoscopic and roentgenologic examination. This familial tendency or predisposition to adenomatosis of the colon in a way parallels the occurrence of malignancy in families and revives the discussion of polyps as the precursor of many colonic carcinomas.

This question, however, cannot be answered until more definite knowledge is obtained of the etiology of the condition. The following classification, the one most generally accepted at the present time, affords some idea of the views held in regard to the origin of the polyps. Erdmann and Morris [4] make the division of congenital, or adolescent, and acquired polyps. Wesson and Bargen [5] conform to this grouping in speaking of post-inflammatory polyps and true polyps. Lockhart-Mummery elaborated on this classification by considering pathologic and etiologic factors and referred to (1) true

1. Warwick, M.: Intestinal Polyposis and Its Relation to Carcinoma, Minnesota Med. 5:94-97 (Feb.) 1922.
2. Quoted by Struthers.[3]
3. Lockhart-Mummery, J. P.: Diseases of the Rectum and Colon and Their Surgical Treatment, London, Bailliere, Tindall & Cox, 1923.
4. Erdmann, J. F., and Morris, J. H.: Polyposis of the Colon, Surg., Gynec. & Obst. 40:460-468 (March) 1925.
5. Wesson, H. R., and Bargen, J. A.: Classification of Polyps of the Large Intestine, Proc. Staff Meet., Mayo Clin. 9:789-794 (Dec. 26) 1934.

multiple adenomas, (2) polyps found in association with hyperplastic tuberculosis, (3) polyps found in association with old strictures of the colon, and (4) polypoid conditions of the mucosa which result from ulcerative colitis. The terms polyposis, polypoidosis and diffuse adenomatosis are not offered as a classification but have been frequently used to designate the adenomatous hyperplasia. Polyposis may mean only one or several polyps, while polypoidosis indicates that the entire inner surface of the large bowel, from the anus to the cecum, contains polyp-like elevations.

Fig. 1.—Second stage of colectomy: The mobilization of the colon is shown beginning from right to left by dividing the lateral parietal peritoneal attachments to the mesentery of the bowel, saving sufficient peritoneum for covering raw surfaces. The omentum is retracted upward with the stomach and is saved. *a*, kidney; *b*, peritoneum; *c*, omentum; *d*, transverse colon; *e*, descending colon.

The cause of true adenomatosis has not been determined. Meyer[6] considered the epithelial reaction secondary to an underlying congenital malformation. The familial relationship which has been noted in our series and in numerous others favors this explanation.

The origin of the acquired or postinflammatory polyps is quite different and better understood. Wagner noted that small polyps appeared on the edges of healed ulcers of the colon, and Rokitansky observed that dysenteric ulcers were accompanied by polyps. He believed that the undermining ulcers produce a break in the mucosa, leaving an overhanging portion, which, being shut off by the regenerative process, forms a pedunculated polyp-like tumefaction with smooth or irregular outlines. Struthers[7] and others have noted the relationship of polyposis with inflammatory conditions of the colon, particularly with chronic ulcerative colitis. The process of formation is assumed to be the same as in other inflammatory conditions of the bowel, with islets of mucous membrane being caught in the cicatrization of the healing process, resulting in outpouchings which terminate in polyps. The distribution of acquired polyps, principally those associated with chronic ulcerative colitis, starts more frequently in the rectum but may extend to involve the whole colon to the ileum. Although the etiology of postinflammatory and true polyps is accepted as being different, one must not forget that the former as well as the true polyps may undergo malignant change. Bargen[8] reported twenty-five cases of carcinoma which had developed in the presence of polyps secondary to the inflammatory reaction of chronic ulcerative colitis. Quite as interesting, Mayo and Wakefield[9] recently reported two cases of disseminated congenital polyposis in which all evidence of the polyps was destroyed in the segments of bowel removed, following the implantation of chronic ulcerative colitis, probably as a result of the destruction and ejection of the mucous membrane.

A pathologic study of true polyps of the colon by FitzGibbon and one of us[10] has emphasized the potential malignancy of this condition and greatly influenced our method of treatment. On histologic examination the tumors were found to fall readily into three major divisions: polyps of group 1 were roughly nodular and invariably pedunculated. The pedicles were usually cylindric, composed of connective tissue derived from the submucosa. The epithelium covering the pedicle and the growth and lining its crypts was unchanged from the standard regarded as normal; however, areas of slight hyperplasia and active inflammation secondary to the constant trauma were occasionally found. There was nothing about the tumors of this group to indicate that they were any more liable to malignant development than the normal intestinal mucous membrane.

Polyps of group 2 showed striking structural changes in both the epithelial and the connective tissue elements. The epithelial cells were hypertrophied, elongated and not completely differentiated, and they stained deeply. There was a complementary response in the connective tissue, which tended to spread out in a treelike formation. The epithelium in this group seemed to develop more rapidly than in the normal mucosal lining and in time was likely to throw off the bounds of restraint and assume an invasive and lawless career. This fact has been repeatedly verified by making numerous sections through the polyps. Many of the areas appeared normal, but not infrequently microscopic signs of malignancy were encountered. Some of the areas were no larger than 2 mm. in diameter. This group is often the source of malignancy of the colon.

Polyps of group 3 represented growths that were an accentuated form of group 2. The epithelium in this process had been arrested at so early a state that differentiation was very slight and the cells attained only the most rudimentary characteristics of the normal intestinal mucosa. Polyps of this group ordinarily did not exceed the size of a split pea. The elementary epithelium proliferated so rapidly that the nodules approached cancerous change before the tumor had become large enough to be played on by the forces of peristaltic action, which is thought to be influential in elongating the tumors. Because of the high incidence of malignancy in this group, it is well to remember that these lesions have been found scattered throughout the intestinal mucous membrane.

Fig. 2.—Second stage completed: The ileostomy is shown in the right iliac fossa. The rectal stump including the lower part of the sigmoid just beyond the rectosigmoid is shown as well as coils of small intestine. The peritonealization is accurately completed. *a*, kidney; *b*, ileum; *c*, omentum; *d*, sigmoid.

6. Meyer, J. S.: Polyposis Gastrica (Polyadenoma), J. A. M. A. **61**: 1960-1965 (Nov. 29) 1913.
7. Struthers, J. E.: Multiple Polyposis of the Intestinal Tract, Surg., Gynec. & Obst. **38**: 610-624 (May) 1924.
8. Bargen, J. A.: Chronic Ulcerative Colitis Associated with Malignant Disease, Arch. Surg. **17**: 561 (Oct.) 1928.
9. Mayo, C. W., and Wakefield, E. G.: Disseminated Polyposis of the Colon, J. A. M. A. **107**: 342-348 (Aug.) 1936.
10. FitzGibbon, Grattan, and Rankin, F. W.: Polyps of the Large Intestine, Surg., Gynec. & Obst. **52**: 1136-1150 (June) 1931.

One should always bear in mind the fact that polyps of group 1 ordinarily pursue a benign career, that the orderly but more rapidly growing polyps of group 2 tend in time to malignant change, and that formations of the order of group 3 are outrightly precancerous. This makes it absolutely necessary for a complete study of these cases, including proctoscopic examination,

Fig. 3.—Third stage: The insertion of the two halves of the Murphy button into the ileostomy (a) and into the rectum. The ileostomy is contracted down and is too small an opening to admit the insertion of the button without incising the tissue around it down to the peritoneum. The other arm of the button is placed into the rectum and pushed high up toward the end of the rectal loop with a proctoscope and specimen taker. These instruments are withdrawn before the abdomen is opened, and the folds of mucous membrane hold the button fairly well in position.

biopsy when possible, and a roentgenogram of the barium-filled colon that one may not err in assuming that a palpable rectal growth is the only source of the patient's symptoms, when polyps, benign or malignant, may be scattered throughout the bowel at higher levels.

There is usually little difficulty in establishing the diagnosis if the condition is kept in mind and the patient is subjected to a thorough gastro-intestinal investigation. The patients are usually young adults of an average age of 30 years. However, the extreme ages do not escape, for there are reported cases of occurrence of the disease in children of 2½ years and adults past 70 years of age. The chief complaint usually is concerned with some alteration in the bowel habitus, particularly diarrhea. A history of continuous, intermittent or recurring diarrhea existing for months or years may not alone suggest a specific influence, but, if the irregularity occurs in a young adult in whose family other members have been similarly affected, the search should be directed toward adenomatosis. The age incidence and the hereditary or familial factor have been repeatedly emphasized by several observers and in our own series these influences have been frequently noted. The stools may contain blood or mucus, which are in no way characteristic of this particular entity.

A story of recurrent cramps may imply intermittent obstruction. It is a common complaint and is often due to intussusception. The polyps stimulate the bowel activity to abnormal proportions, which induces various degrees of invagination in the bowel. The infectious processes, such as amebiasis, chronic ulcerative colitis and the dysenteries, can usually be eliminated as causative factors by bacteriologic and cultural studies of the stools.

Weight loss, a secondary anemia, debility and general weakness parallel the intensity of involvement and infection, which at times are so marked as to create grave suspicion of malignancy. Quite often the diagnosis is unfolded to the mind's eye by the simple procedure of placing an examining finger into the rectum, where nodular polyps await and do not defy discovery. This portion of the gastro-intestinal tract, so easily accessible to investigation, is more frequently the site of adenomatosis. The examination should not rest at this point but should be supplemented by sigmoidoscopic search and roentgenologic studies of the barium-filled colon if one would deny oneself the embarrassment of subsequent exposure of unsuspected polyps at higher levels when they may prolapse through a colostomy stoma.

TREATMENT

The debilitation resulting from prolonged diarrhea, blood loss and chronic infection, and the pathologic knowledge of the high incidence of malignant change occurring in diffuse adenomatosis of the colon, are the factors that have made radical surgical treatment imperative. To remove a part of the involved bowel, leaving diseased segments, has proved of temporizing benefit at the best. Obviously, then, to be permanently free from the process, treatment had to be designed to remove the whole colon.

Colectomy when first performed was a formidable procedure and, when undertaken in one stage without

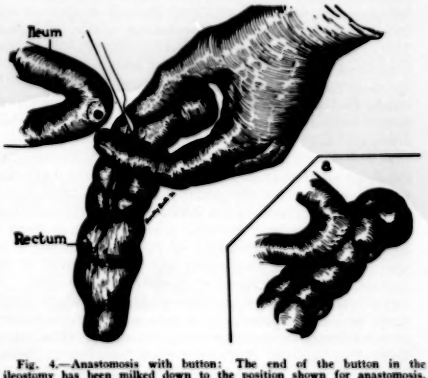

Fig. 4.—Anastomosis with button: The end of the button in the ileostomy has been milked down to the position shown for anastomosis. The end in the rectum is brought up to the proper position and held there by the fingers of the left hand. A small opening is made in both the ileum and the rectosigmoid and the button snapped together. The inset (a) shows completed anastomosis with a few interrupted catgut sutures surrounding it.

considerable preparation and rehabilitation, carried a high mortality. A temporary ileostomy was soon devised and its value or necessity was immediately appreciated. By sidetracking the fecal current in this way the associated infection subsided and the rectal discharges of blood and mucus were greatly reduced to

allow for marked general improvement. The patient's weight usually registered an appreciable increase, the secondary anemia was frequently overcome without aid of transfusion, and the patient's general health was more sturdy and able to withstand the shock of a major surgical procedure.

With the colon at rest and peristalsis at low ebb, the infection and some of the polyps readily subside and make the colon more easily manageable when resection is undertaken. Otherwise the thick-walled, infected bowel is highly friable, is difficult to suture satisfactorily and often may be the source of a fatal peritonitis when manipulated. An optimal period of about six months is desirable for an ileostomy. In addition to allowing for favorable changes in the colon, the ileum is given time for necessary adjustments vital to restoration of fluid balance. At first the substance issuing from the ileostomy is liquid and more or less continuous, but in time it is altered in consistency to a semisolid state. Whether the ileum dilates sufficiently to take over some of the functions of the colon or whether, as Wakefield suggested, the kidneys compensate in maintaining the electrolytic balance of the body, the benefits of the procedure preceding total colectomy or subtotal colectomy are definitely established. Any artificial stoma of the gastro-intestinal tract will meet with objection from the patients; but when the benefits of such a procedure are enumerated their sanction is readily secured, particularly when the inconvenience is temporary. With recent improvement and modification in the surgical attack on diffuse adenomatosis, the rectum is more frequently saved than destroyed and provides a site for subsequent anastomosis of the ileum, which dispenses with the ileostomy as a permanent fixture.

An ileostomy for adenomatosis is best performed by dividing the terminal ileum, closing the distal end and bringing the proximal end out through a split muscle incision in the lower right quadrant of the abdomen. The lumen is no longer occluded by a clamp but accommodates a Pezzar catheter, which is inserted and secured by a purse-string suture. Drainage is immediately established and distention, cramps and the associated discomforts of an obstructed bowel are prevented, while fluids are administered by mouth without delay.

Several months, usually six, is the optimal time after the ileostomy has been made to put into execution plans for the removal of the colon. A shorter time is not adequate for rehabilitation and reduction of the infection and edema, and likewise a longer time is contraindicated, since it may allow for malignant change. At one time we did a total colectomy with removal of the rectum, having a permanent ileostomy in all cases. It was a bearable and often comfortable appendage which could be countenanced, but it was never as convenient as the normal mechanism with continence. The introduction of surgical diathermy made possible modifications in technic, combining conservatism with effective treatment and preservation of the rectal control. The rectum to the rectosigmoid juncture has come within the range of attack through the proctoscope. The polyps in this field can be destroyed by fulguration and this segment of bowel with its sphincteric mechanism salvaged for anastomosis with the ileum. This can be accomplished at intervals during the existence of the ileostomy while time is being allowed for the patient's general improvement as well as reduction of the infection and edema of the colon.

The removal of the colon may be undertaken by one of several steps after the ileostomy has been performed and the rectal polyps completely destroyed by fulguration. Some advocate the anastomosis of the ileum to the rectal stump before doing a subtotal colectomy. On the other hand, there are those who believe that a reversal of this plan by doing the colectomy first, allowing for several weeks or months to pass before anastomosing the ileum to the rectal stump, is the better procedure.

In any individual case the order may vary because of specific indications, but in a general way we prefer to do an ileostomy, waiting six months during which time the polyps are destroyed, and then doing a subtotal colectomy and finally the anastomosis at a subsequent operation. Then, when one is assured of the adequate function of the anastomosis, the ileostomy may be closed under local anesthesia.

Recently it has been proposed to leave longer segments of the colon, the sigmoid and descending colon above the site of proposed anastomosis with the ileum. It is difficult to see the advantages of this, and there are several apparent disadvantages to such a procedure. The added loop or segment proximal to the anastomosis is unnecessary as a reservoir, and, of greatest significance, it is beyond the reach of the investigating protoscope or sigmoidoscope, which is the only means of maintaining strict observation over this field, which of course is subject to recurrent polyp formation.

The short rectal stump, as we advocate, supplies adequate storage space with the spacious ampulla of the rectum to serve as a reservoir to permit the patient the convenience of two or three stools a day under control. This short colonic stump is well within the range of investigation and can be frequently checked for the presence of any polyps, and treatment in the instance of recurrence can be rendered by fulguration.

The subtotal colectomy is usually accomplished through a long left rectus incision and the colon is removed from right to left. In mobilizing the right colon, one cuts the outer leaf of the peritoneum in the bloodless area, rotates the bowel mesially, and ligates the blood vessels rather close to the bowel wall as they appear. It is helpful to accomplish the peritonealization of raw surfaces as the different segments of the bowel are mobilized.

The first mobilization of the colon goes to the hepatic flexure, where the retroperitoneal duodenum is identified and safeguarded against injury. From the hepatic flexure to the splenic flexure the step is a rather easy one if one leaves the omentum as a protection against infection and to be utilized in covering denuded areas. The splenic flexure is more difficult to mobilize, but by cutting the splenocolic ligament and the lateral parietal peritoneum along the margins of the descending colon one may rotate it mesially and get at the blood supply accurately. The dissection is carried on to the rectosigmoid, where the bowel is cut across and the lower end invaginated. The resected portion of the colon is removed in one piece and the peritoneum is closed over the raw areas.

The turning in of the lower end of the bowel is a procedure often fraught with considerable difficulty and danger. The bowel wall is frequently thickened and may be edematous, which makes it quite friable. Often if Payr clamps are applied the bowel will be cut across and peritoneal contamination will ensue. To prevent this misfortune, rubber covered gastro-intestinal clamps may be used and the bowel divided by the cautery between them.

It is desirable to close and invaginate the lower end of the remaining rectosigmoid. In adenomatosis it is often difficult to turn in the end of the bowel when the polyps are diffuse, so one may have to be satisfied with closure of the lumen with through and through stitches and safeguard against contamination or separation by suturing fat tags, the omentum or the adnexa in the female over the end of the bowel. At other times it may be necessary to enclose the rectosigmoid stump in iodoform gauze and rubber tissue and drain to the outside.

The patient as a routine receives a blood transfusion following the subtotal colectomy, which protects and provides against the element of shock. The third stage of the operation is advantageously delayed a number of months, during which time the rectal stump may be repeatedly investigated and fulgurated if the polyps have not previously been destroyed. Usually in from three to six months the patient is in readiness for anastomosis of the ileum with the rectosigmoid stump. We do this step by one or two methods, one of which is an aseptic anastomosis over the Rankin [11] clamp, and the other by the Murphy button. The former is quite easily and satisfactorily executed if there is sufficient rectal stump or if the patient is the thin type and the bowel is mobile. If difficulties are encountered, one may always resort to anastomosis with a button. This is probably simpler and more quickly carried out. One part of the button is introduced through the proctoscope and held in place by a long forceps at the desired level in the rectum where the anastomosis is to be made. The other part is placed into the ileum and secured by a purse-string suture, as is done in all anastomoses where the button is used. The separate parts of the button can easily be manipulated in place, the one guided by the operator's hand in the abdomen and the other by manipulation of the proctoscope. When the two buttons are brought alongside each other they can be approximated and locked. The site of anastomosis is reinforced by interrupted sutures.

As a rule, the anastomosis is clean and there is no necessity for drains. The ileostomy is still present and serves as an added safeguard and sidetracks the fecal current from the recent anastomosis until sufficient time has elapsed for its safe and firm healing. Within two weeks the ileostomy, having served its purpose, can easily be closed under local anesthesia. The patient is now returned to a normal anal control and has on the average from two to three semisolid stools a day.

CONCLUSIONS

With the addition of two cases completed within the last year, our series now totals thirteen cases, in seven of which, as previously reported, the entire colon and rectum were removed by multiple procedures. In six cases the colon was removed to the rectosigmoid juncture. These operations were undertaken for both adenomatosis and complications arising from diffuse chronic ulcerative colitis. In the earlier cases the more radical total colectomy was done for both lesions. Now it is reserved for chronic ulcerative colitis.

The remarkable disappearance of diffuse rectal polyps following vigorous fulguration encourages us to save the rectal stump and anastomose it with the ileum. However, we condemn any method whereby segments of the colon beyond the rectosigmoid are preserved. They are a definite menace as a site of recurrent polyps and are beyond the range of proctoscopic investigation.

In this series there was one operative death following the second stage colectomy. Another patient died eighteen months following the completed operation from recurrence of carcinoma, which had developed on polyps and which was demonstrated at exploration.

5140 Second Boulevard.

11. Rankin, F. W.: Total Colectomy; Its Indications and Technic, Ann. Surg. **94**: 677-703 (Oct.) 1931; Colectomy for Adenomatosis and Pseudopolyposis, Ann. Surg. **102**: 707 (Oct.) 1935.

MYASTHENIA GRAVIS IN CHILDREN

ITS FAMILIAL INCIDENCE

HAROLD B. ROTHBART, M.D.
DETROIT

Myasthenia gravis is not infrequently encountered in children, but its familial incidence has never been stressed. My purpose in this report is to present two cases of myasthenia occurring in brothers, in whom the onset was in early infancy, this also being an unusual feature. No attempt is made to review all the cases of myasthenia gravis arising in childhood. It soon becomes apparent to the reviewer that the literature is voluminous and that not a few cases reported in adults had their beginning in early life. There seems to be nothing strikingly different about the disease in children to warrant a detailed discussion of its clinical features.

REPORT OF CASES

CASE 1.—*History.*—Marvin W., aged 9, Jewish, admitted to the pediatric service Sept. 12, 1934, complained of generalized weakness, inability to move his eyes normally and drooping eyelids, noted since infancy but more marked during the past year.

Weakness of the eye muscles and abnormal drooping of the eyelids were first observed at 6 weeks of age. Although he developed normally, it was noticed that he could not run or skip a rope like other children and that he was unable to climb. His walk has always been awkward. When he arises in the morning his eyes are wide open but within half an hour the eyelids droop and the eyes become more fixed. He soon tires and this generalized weakness becomes more marked with the progress of the day. Rest periods restore his strength to a certain degree. His facial expression has always been masklike. He is unable to laugh or cry out loud. He has no difficulty in chewing or swallowing. "Asthmatic" attacks are described as having occurred during infancy with noisy breathing, particularly during the night. These were relieved by inhalation of steam. These attacks have not recurred within recent years, but occasionally rattling sounds in the throat are heard. The speech has always been nasal. The patient's general condition has been stationary until about one year ago, when weakness became more marked.

The birth and developmental history are normal. The mother was well during pregnancy. She felt "life" at about the fifth month and the fetal movements were vigorous compared with her other pregnancies. Labor lasted eight hours and was spontaneous. The birth weight was 8½ pounds (3,855 Gm.). The only abnormality observed at birth was the weak cry. Later in infancy the patient did not seem to be very active. He made little effort to kick off the covers even though he was warm. He nursed without difficulty, not tiring during the feeding, he sat up at 6 months, the first tooth erupted at 8 months and he walked at 1 year. When he first began to crawl and walk he was rather awkward and weak. He talked at about the normal time with a nasal twang.

The patient had pneumonia at 6 weeks of age, following which the eyelids were first found to be drooping. Coryza attacks had been frequent during the winter months but not in the summer. He had measles at 8 and a tonsillectomy two years before. There is an occasional nondescript recurring pruritic papular eruption on the body.

From the Department of Pediatrics and Infectious Diseases, University of Michigan Medical School, D. Murray Cowie, M.D., director.

A brother, aged 13 years, whose history will follow, has the same disease. Another brother died of pneumonia at the age of 7 months about twenty years ago, having had at the time drooping eyelids and limitation of movements of the eyes, which were first noted at 3 months of age. Another brother, now 18 years old, had drooping eyelids at the age of 2 during an attack of whooping cough and now has recurrences of lagophthalmos with any severe infection but is otherwise quite strong and well. No other members of the immediate or near family are similarly affected. The parents are living and healthy.

Examination.—The patient on examination was mentally alert and of average nutrition and development. He is 51 inches (130 cm.) tall and weighs 54 pounds (24.5 Kg.). He has a waddling gait and runs in a similar fashion, taking short steps. He is able to rise from a supine position without "climbing up himself." There is a moderate lumbar lordosis and bilateral pes planus. There is ptosis of both eyelids, the upper eyelids crossing the cornea just above the center of the pupils, with partial external ophthalmoplegia. The pupils react to light but not in accommodation. The fundi are normal. Bifacial weakness is present, resulting in an ironed out expression. The patient is able to laugh or frown, but weakly. He can wrinkle his forehead, fully protrude his tongue, and whistle. Food does not collect between his teeth and cheeks. Chewing and swallowing are unimpaired, slowly performed without fatigue. Counting to 75 causes fatigue. The head is held slightly forward. There is no apparent weakness of the muscles of the neck. The thyroid is not enlarged. There is a shallow depression of the sternum and some flaring of the ribs. There is widespread muscular weakness, particularly of the muscles of the back, the flexors of the hips and legs, and muscles of the hands and forearms. There is no muscular atrophy, hypertrophy or fibrillary twitching. The reflexes are normally active; they could not be exhausted readily by repeated stimulation. The myasthenia reaction of Jolly could not be elicited. Roentgen studies of the chest, skull and long bones are negative except that all the long bones are elongated and there is a bilateral coxa valga. The paranasal sinuses show no haziness and the thymus gland is not enlarged. Examination of a section of the triceps muscle demonstrates no pathologic condition.

The blood Kahn test was negative; the basal metabolic rate, —9 per cent and —7 per cent. Spinal fluid was normal. Blood chemistry (Dr. E. L. Wardell) showed: fasting sugar 67 mg., cholesterol 230 mg., total fat 520 mg., creatinine 1.6 mg., nonprotein nitrogen 29 mg., total serum protein 6.8 Gm., serum globulin 4.7 Gm., serum albumin 2.1 Gm., chlorides 504 mg., calcium 10.5 mg., phosphorus 4.7 mg., dextrose tolerance test: fasting 77 mg., two hours 111 mg., three hours 92 mg., four hours 78 mg. Urinary creatine and creatinine determinations on a twenty-four hour specimen are given in the accompanying table.

Course.—After being placed on aminoacetic acid (glycine) 10 Gm. twice daily and ephedrine sulfate one-eighth to three-fourths grain (0.008 to 0.05 Gm.) three times a day, striking improvement occurred which could not be maintained on ephedrine alone. At present his condition is stationary, having become so almost a year ago. His physical condition has remained unchanged except for increased muscle strength. Subjectively he feels greatly improved. He does not tire easily and he is able to hold his eyes wide open most of the morning. Any infection or a discontinuation of the medication soon brings about a relapse.

Case 2.—*History.*—Donald W., aged 15 years, brother of patient 1, has drooping of the eyelids, which began at 6 months following a cold. This was not marked on awakening early in the morning but became quite noticeable later in the day. The patient was not very active and he showed generalized weakness which did not increase in severity. The gait was weak and waddling. No information is available regarding the extra-ocular movements in infancy, but there is evidence that they had been definitely impaired since the patient was 3 years of age. The cry was weak and he was not able to laugh loudly. The facial play of the features was diminished. There was no disturbance of swallowing and he did not tire on eating. He began to speak with a nasal twang at the normal time. There has been a gradual spontaneous improvement since the age of 6 years without the aid of any treatment.

There had been normal fetal movements during gestation and a full term normal labor. There was cyanosis for a short time after birth. The birth weight was 8 pounds (3,629 Gm.). He held the head erect at 6 months, sat up without support at 8 months and walked at 1 year with a waddling gait. He was breast fed for eleven months, not nursing very vigorously. He received no orange juice or cod liver oil in early infancy. His weight at 1 year of age was 20 pounds (9,072 Gm.).

He had chronic colds from 6 months to 2 years of age, measles at 4 years, chickenpox at 4 years, whooping cough between 2 and 3 years, and otitis media at 1 and 2 years.

Examination.—With the exception of partial external ophthalmoplegia (bilateral) and some drooping of the eyelids, which had been lifted surgically several years before admission, the physical examination was negative. The patient is quite active, does not tire readily, has a normal gait and has good muscle power. Speech is normal. There is no facial weakness. Chemical studies on the urine and blood were not done, nor was a biopsy of the muscle taken for examination.

Fig. 1 (case 1).—The face is expressionless. There is a bilateral lagophthalmos and drooping of the mouth.

Fig. 2 (case 1).—Bilateral facial weakness shown when the patient is smiling.

Fig. 3 (case 2).—A brother of patient 1, showing the bilateral lagophthalmos.

The finding of four cases of myasthenia gravis in one family is extremely interesting and suggests heredity as an important etiologic factor. Three out of five siblings were affected in varying degree, all beginning in early infancy. One other also probably had it but in a mild form, only presenting a lagophthalmos, and he recovered completely but with a tendency toward recurrences during any acute illness. All are boys. One sister in the family is quite healthy and shows no evidence of weakness. In case 1 the improvement was entirely due to the combined action of the aminoacetic acid and ephedrine. There is still present considerable

weakness with very little change in the facial weakness, ophthalmoplegia or lagophthalmos, although he is able to keep his eyes open fairly wide for several hours in the morning. In the past year little improvement has taken place, but with the cessation of the medication he immediately becomes worse. Infections of the upper respiratory tract have been rather frequent, and these incite a relapse. When first seen in 1930 the "asthmatic" attacks were considered to be of allergic origin. Myasthenia gravis was not thought of at the time. Sensitization studies incriminated a number of foods, which were eliminated from the diet without any improvement. We now know that the asthmatic spells were due to the fatigability of the muscles of respiration. Laboratory studies on our patient have not revealed anything of significance outside of an increased creatinuria. The thymus gland, often found enlarged in such cases, was normal. The long bones presented changes usually identified with pseudohypertrophic muscular dystrophy, which account for the peculiar waddling gait seen in both diseases. It is possible that the coxa valga is the result of weakened muscles and ligamentous supports of the joints. While he was under treatment I observed an increased output of both

Urinary Creatine and Creatinine: Determination on Twenty-Four Hour Urine Specimen

Date	Volume, Cc.	Creatinine, Mg.	Creatine, Mg.
		House Diet	
9-30-34	410	186	202
9-30-34	Meat Free and Creatinin Free Diet		
10- 7-34	324	191	115
10- 6-34	Ephedrine and Aminoacetic Acid Therapy Instituted		
10- 9-34	610	242	181
10-10-34	560	374	235
7- 3-35	923	386	515
7- 4-35	915	487	510
9- 4-35	...	560	270

creatinine and creatine in the urine, but my last studies show no return to normal figures, a finding frequently observed after the patient has received aminoacetic acid for a relatively long period. The patient was on aminoacetic acid for about a year when the last creatinine and creatine determination on the urine was made.

In case 2 the interesting feature is the spontaneous improvement without the aid of any medication or other kind of therapy. So far this boy has had no relapse, although his recovery cannot be said to be complete in view of the persisting ophthalmoplegia and residual postoperative lagophthalmos. It would be hazardous to state that a relapse may not occur, since recurrences have been observed even after many years of apparent cure, mostly in adults.

Stephenson [1] reported a case of myasthenia gravis in an 8 year old girl whose symptoms began at the age of 9 months following vaccination, with a moderate local and systemic reaction. To his knowledge that was the earliest case in the literature. In the cases reported here the symptoms began even earlier in infancy, at 6 weeks, 3 months and 6 months of age.

CONCLUSIONS

1. In one family there were four cases of myasthenia gravis in brothers. In the two cases presented here the boys are aged 11 and 15 years. One other sibling who died in infancy from pneumonia had definite signs of myasthenia gravis at that time. Another brother develops lagophthalmos during acute infections.

2. Spontaneous remission beginning at 6 years of age occurred in case 2. The other's condition is now stationary, following a period of improvement while on aminoacetic acid and ephedrine.

3. The evidence in these cases suggests that myasthenia gravis is a familial and possibly a hereditary disease.

5140 Second Boulevard.

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Clinical Notes, Suggestions and New Instruments

PARAPLEGIA FOLLOWING MEASLES

CHARLES ROSENHECK, M.D., AND HARRY BAROWSKY, M.D., NEW YORK

The development of nervous complications and sequelae in acute infections in childhood is always of interest and concern to the neurologist and the pediatrician. On account of the inherent instability of the central nervous system in the young, its vulnerability and reaction to toxic substances is very much enhanced. This fact is a common observation clinically and one notes all forms of abnormal neural manifestations in the wake of toxic invasion of whatever type.

The exanthems in particular contribute a goodly share of these neural disturbances, and measles "encephalitis" is pretty well known and recognized by the profession. Other forms and combinations, affecting single or multiple parts of the central nervous system, each registering in its own particular manner interference with function, are seen from time to time, although the incidence is very low.

Thus, according to Rolleston,[1] "encephalitis" occurs in measles more commonly than after any of the other diseases of children, although the incidence is very low even in measles. Boenheim [2] states that among 5,940 cases of measles treated in the various hospitals in Berlin between 1905 and 1925 there were nervous complications on 0.4 per cent, including eight cases of "serous meningitis," six cases of "encephalitis" and eleven cases of unexplained convulsions.

In Ford's [3] comprehensive article, every neurologic complication of measles, with case reports indicative of each group, is tabulated. An analysis of these tables reveals a preponderant number of cases of diffuse cerebrospinal involvement with a relatively small number of pure spinal forms. The latter have been responsible for the paraplegic or "myelitic" syndrome, similar to our own case.

The extreme rarity of this neurologic complication of measles is evidenced by the fact that a thorough search of the American literature yielded but one case, that reported by Miller and Ross.[4] The two cases reported by Bassette [5] and included by Ford in his tabulation are not pure "spinal" forms but indicate brain-stem involvement as well. The few cases reported are scattered in the foreign literature, principally the French and the Italian. It may be of interest to note that the first recorded case of paraplegia following measles occurred in a woman, aged 23, and was reported by James Lucas [6] in 1790.

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5. Bassette, M. L.: The Paralyses in Children Which Occur During and After Infectious Diseases, J. Nerv. & Ment. Dis. **17**: 461-493, 1892.
6. Lucas, James: An Account of Some Symptoms Succeeding the Measles, London M. J. **11**: 325-331, 1790.

REPORT OF CASE

Clinical History.—I. G., a white boy, aged 8, was taken acutely ill May 2, 1936, with a high fever of 105 F., a slightly sore throat and mild photophobia. His pulse was 130 per minute and respiration 15. The only other positive physical signs were a mild conjunctivitis and a moderately congested throat. For the first three days of his illness the fever was septic in type, ranging from a mild 101 in the mornings to 105 in the evenings. A maculopapular eruption appeared, starting at the back of the neck and the forehead and spreading rapidly downward until it covered the whole body. However, no Koplik spots appeared in the mouth. The clinical diagnosis of measles was made. The white blood cells at this stage numbered 6,200, with a differential count of 55 per cent lymphocytes, 43 per cent polymorphonuclear cells and 2 per cent monocytes.

The fever persisted for three more days; on the seventh day it subsided by crisis. For the following three days the temperature was normal, the rash faded and physically, with the exception of a slight photophobia, the patient appeared to be normal. Because of the acutely severe course of his illness he was advised to remain in bed, but after the second day of normal temperature he was out of bed and running around the room.

The following day, the ninth day from the beginning of his illness, he developed a high fever again (104). The following three days the fever ranged from 103 to 104; the pulse rate was from 120 to 130 per minute; respiration 14 to 16; the white blood cell count was 21,600, with 78 per cent polymorphonuclears, 20 per cent lymphocytes and 2 per cent mononuclears. There was no localization of symptoms and physical examination gave essentially negative results.

On the fourth day of his fever remission he complained of severe pains in his back, abdomen and legs. At about the same time there was rapid development of motor loss in both lower extremities. A little difficulty in voiding the urine was complained of but there was no incontinence at any time.

The neurologic status revealed a conscious, alert youngster, complaining bitterly of pain and resenting any manipulation of his lower extremities, which were extremely hyperesthetic to all tactile or manipulative stimuli.

The pupils reacted promptly to light and during accommodation and the fundi showed no deviations from the normal. Nystagmus was not present. There were no oculomotor palsies. Gross examination of the rest of the cranial nerves revealed normal functioning. The neck was not rigid.

The upper extremities were not involved and the reflexes (biceps, triceps and radial) were active and equal. The lower extremities were completely paralyzed, with abolition of the patellar and ankle reflexes. A bilateral equivocal Babinski sign was present, without any other confirmatory abnormal reflex signs. The sensory examination revealed no sensory loss in any dermatome. Hyperesthesia, however, as already mentioned, was marked in all the dorsal and lumbar dermatomes. The abdominal reflexes (upper and lower) were totally abolished. A lumbar puncture revealed the fluid to be under normal pressure, clear, with a cell count of 4 per cubic millimeter and a faint trace of globulin. Sugar was 0.08 per cent and negative on direct smear for organisms.

Subsequent Course.—This state of affairs remained unaltered for three weeks. At the end of this time the patient gradually commenced to regain power in the paralyzed extremities and at the end of another three weeks was able to leave his bed and walk about the room, with assistance. The changes noted in the initial examination were unaltered, but the hyperesthesia was diminishing. He gradually recovered completely and was able to walk and run, unassisted, at about the end of three months following his illness.

A subsequent examination (three months after the paralysis) revealed the following neurologic status: The gait was somewhat spastic and a steppage element was present; the dorsiflexors of the ankle were weak but the dorsiextensors showed good motor power. The musculature of the thighs likewise showed effective strength. The reflexes of the lower extremities manifested a definite reversal, as they had returned completely and were even exaggerated. The Babinski signs, however, were still equivocally present. The abdominal reflexes also had returned.

The sensory examination was still completely negative and the hyperesthesia had disappeared entirely.

COMMENT

This case is believed to be worthy of record in view of the fact that it is one of the few recorded cases in the American literature presenting a purely spinal or "myelitic" complication of measles. The usual types encountered are encephalomyelitic, which obviously means invasion of some portion of the encephalon, with its attendant symptomatology and ever present danger of permanently disabling sequelae, which, according to Ford, is as high as 65 per cent. Although our case still shows moderate residual signs, the steady improvement bespeaks a complete neurologic recovery.

A discussion of the mechanism producing the paraplegia, particularly where recovery has occurred, may also be ventured. We believe this to be "toxic-allergic," producing in its wake sufficient swelling of the cord and subsequent constriction of the ganglion cells to interfere with its gross functions. Recovery occurs when the "allergic" reaction subsides. Obviously, if the swelling lasts long enough degenerative changes are the result, which declare themselves clinically by residual neurologic symptoms and signs.

It is barely possible that in measles intoxication the "allergic" skin eruption may have its counterpart in the brain and cord, which might be elicited on careful routine neurologic examination, conducted either at the height of the disease or during convalescence. We believe that a fair number would show "organic" evidence of neural involvement of a transient character.

300 Central Park West.

REACTION DUE TO INJECTION OF SODIUM MORRHUATE

MAURICE L. DALE, M.D., CHICAGO

A patient of mine experienced a severe general reaction, Oct. 13, 1936, following an injection of sodium morrhuate into a varicose vein. I was unable to find anything in the literature regarding such a reaction until I saw the article by Kenneth M. Lewis in the Oct. 17, 1936, issue of THE JOURNAL. It occurred to me to report my case as an additional one of sodium morrhuate reaction, and also because there were certain interesting differences in the history and the reaction.

REPORT OF CASE

C. W., a man, aged 50, a janitor, July 21, 1936, gave a history of varicose veins of the left leg of fifteen years' duration and ulcer of the ankle for ten years. Two years previously he had been given injections of quinine and urethane twice a week for four months with very little results. He stated that at that time, following each injection, he experienced vertigo, flushing of the face and profuse perspiration, which would last fifteen minutes. The internal saphenous and popliteal group of veins were varicosed. There was an ulcer on the anterior aspect of the ankle about 2 inches (5 cm.) in diameter, and the entire ankle showed a brown discoloration with scars of old healed ulcers.

Treatment was started with 1 cc. of 5 per cent sodium morrhuate (Parke, Davis & Co. ampules), one treatment weekly, one vein being injected each time. The dose was increased to 2 cc., 3.5 cc. and finally 5 cc. each time. The response was very good, each injection showing good results. No local or general reaction was experienced at any time.

After the thirteenth injection, October 13, the following reaction was noted: There had been no pause in the treatment during the entire course up to this date. Just as the injection was completed, the patient complained of vertigo and faintness. He quickly grew very pale and the lips and fingers became cyanotic and the pulse imperceptible. The heart tones were weak and slow, irregular both in rate and volume, and about 30 to 40 per minute. The patient quickly became semicomatose. Five minims (0.3 cc.) of epinephrine 1:1,000 was given sub-

cutaneously. The heart tones fell to 20 per minute and became almost inaudible for about forty-five seconds, then slowly began to pick up and in about three minutes were normal. The color became good. About five minutes later the entire chain of symptoms recurred. This time I tried giving one-half ounce (15 cc.) of whisky by mouth. The symptoms continued to progress and in about a minute the heart tones were inaudible and the patient entirely comatose. Ten minims (0.65 cc.) of epinephrine was given intravenously. The response was rapid, the heart tones becoming strong and rapidly increasing in rate, reaching 110 in about two minutes. The patient looked and felt normal in fifteen minutes. He was watched for two hours and showed no abnormal signs. One week later he reported that he had had no further symptoms.

COMMENT

This case differs from Dr. Lewis's in that:

1. There was no period of cessation of treatment during which the patient could have become sensitized.

2. The chief symptom was bradycardia, resembling heart block instead of tachycardia.

3. There was no urticarial rash, bronchial spasm, intestinal spasm or any other of the phenomena one usually associates with anaphylaxis.

I have previously had a patient who experienced transient vertigo, lasting about fifteen seconds, following each injection of sodium morrhuate. During these attacks she would become somewhat pale, the lips would be slightly cyanotic, and the pulse would become slower and skip a few beats. The reactions did not alarm the patient, but when they occurred regularly after each injection I discontinued the treatment.

It is probable that this is not an anaphylactic reaction due to some liver protein remaining in the solution, as suggested by Dr. Lewis, but rather a specific reaction due to an idiosyncrasy to the sodium morrhuate.

3568 West Harrison Street.

A METHOD OF PATCH TESTING WITH PLANT OIL

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Prior to four years ago our patch testing of individuals in suspected cases of contact eczema from plants was a time consuming procedure. Because of the seasonal occurrence and the predilection of the eruption for the exposed areas, such as the face, neck, hands, forearms and legs, a tentative diagnosis of contact dermatitis of plant origin was usually readily made. As most of our patients came from rural communities and often from a considerable distance, patch testing to determine the offending agent was often necessary on the patient's initial visit. This required frequent excursions into the country to collect plants which the affected individual was most likely to encounter. Weeds common to the patient's particular locality often grew sparsely or only in certain parts of our territory. This frequently necessitated rather wide excursions for the collection of a few common specimens.

After the plants were collected the application of the patch test, with the necessary washing of the hands after each test, required more time than could conveniently be devoted to one patient. In one instance the collection of thirty weeds and the application of the tests required over three hours. In another instance the application of seventy-two specimens of flowers and shrubs, furnished by the patient, required almost two hours. With patch testing material available, even when one works rapidly, it requires considerable time to apply the substance, cover with some impermeable material, securely anchor it to the skin, and carefully wash the hands.

About four years ago a large number of the more common Texas weeds, flowers, shrubs and leaves of the low hanging trees were collected and placed in bags. After complete drying these were ground and placed in wide-mouth stoppered bottles for routine testing. This eliminated almost daily excursions into the fields and seemed temporarily to solve our problem. Some of these powdered specimens are now over four years old and seem to have lost none of their original antigenic properties.

As the number of collected plants increased this method also proved time consuming, since each powdered plant had to be applied separately, the anchoring material adjusted and the hands thoroughly washed after each test. Our testing time had been about halved since collecting the material was not now necessary, yet the procedure was still a tedious one.

Twenty-six months ago it was decided that some new method was needed to shorten the time required for such testing.

Plants were collected, allowed to dry thoroughly, broken into small particles and placed in pint Mason fruit jars. The jars were completely filled with the dried material and commercial ether was added to cover the plants to be extracted and the jar was then tightly sealed. After standing for twenty-four hours the ether extract was poured into an open vessel and allowed to evaporate. No effort was made to remove the chlorophyll or to purify the oil. The oily residue was then placed in small vials and was ready to use. As most of the weeds, flowers and leaves of trees yielded an abundance of oil, the procedure was found to be a very inexpensive one. A second extraction was necessary from certain plants to secure a desired quantity of oil. Sufficient oil to make approximately fifty tests has cost about twenty-five cents.

As these oils are neither true fats nor simple glycerids of fatty acids, it was presumed that, if they were kept dry, bacteria would not grow in them and that if rancidity developed it would be due to enzymatic activity or oxidation. For this reason and to prevent possible false reactions, no preservative was added to our oils. We now have on hand forty oils which have been kept at room temperature for more than two years. These have been opened repeatedly for patch testing. Rancidity apparently has not developed in any of them. Patch testing with these oils shows that they have retained their original eczematogenous properties for sensitive individuals and have not become antigenic for previously nonsensitive persons.

Our oils are kept in small vials with rubber bulb stoppers to which are attached capillary tubes. As the usual sites of contact dermatitis from plants are on the exposed areas (face, neck, hands, forearms and legs) the back is the area usually chosen for application of the tests. In applying an oil the capillary tube, which extends into the oil, is filled by squeezing and releasing the bulb stopper. A drop of oil is then placed on the skin and spread by the tip of the capillary tube over an area approximately 1 cm. in diameter. The tests are applied vertically in rows of ten; no covering is placed on the sites. After a few minutes allowed for drying, the upper test in each row is numbered with 10 per cent silver nitrate. Patients are advised not to bathe for twenty-four hours. About five minutes is required to apply and adequately number forty tests, the number of oils we use as a routine at the present time.

Besides the convenience of this method of patch testing with plant oils, the procedure encourages routine testing with a larger number of plants. This has proved that many plants heretofore considered innocuous have been excitants in distressing local or widespread eruptions. Through routine patch testing it has been proved that in this vicinity Parthenium hysterophorus causes a greater number of contact eruptions than any other plant except ivy (Rhus radicans). Our bitter-weed, or dog-fennel (Anthemis catula), is a frequent excitant of contact dermatitis. In addition to the well known eczematogenous short and giant ragweed and bur-weed marsh elder, such plants as sun flower, Shasta daisy, Amoor river privet, hack-berry, mesquite trees, field corn, cotton, broom-weed, milo-maze, sorghum, trumpet vine, fig, mustard greens and cockle-bur have been proved the cause of annoying contact dermatitis. Positive patch tests have frequently led us first to suspect many of these excitants.

1410 Medical Arts Building.

What Gifts Should a Student Bring?—In plain words, What gifts of heart and mind ought a student to bring to the service of his hospital? He ought to bring those gifts which come of a good disposition, a good home and a good public school. He should have reverence, and a fair liking for work, and a certain simplicity or directness of thought; and should know Latin, and a manageable quantity of general facts; and should be resolute, in company, and even against company, to say the right thing and take the right side. One more gift he should have, which time alone can give, a sufficient age.—Paget, Stephen: Confessio Medici, New York, Macmillan Company, 1931.

Special Clinical Article

TROPHIC FUNCTION OF THE SYMPATHETIC NERVOUS SYSTEM

CLINICAL LECTURE AT KANSAS CITY SESSION

LEON ASHER, M.D.
Professor of Physiology, Berne University
BERNE, SWITZERLAND

I have the honor to discuss before this distinguished meeting certain research work which has led to establishing the fact that the sympathetic nervous system has trophic functions. This system is often called the vegetative nervous system and that term implies a trophic influence. Modern experimental medicine has denied the existence of trophic nerves mainly on the basis that, when a denervated tissue is protected against outer harmful stimulations, all symptoms of injury are abolished. The contention that the desensitization of, for instance the cornea, was the cause of the ulcerations observed, was correct; but just the protection of the eye on the other side removed the possibility of tracing trophic nervous influence.

The first experiments that my associates and I conducted in the Physiologic Institute at Berne concerned the influence of the sympathetic nerves on voluntary muscles. We were able to show that, when a state of fatigue had appeared, stimulation of the sympathetic nerves leading to the extremity that was forced to work restored those muscles. As this restoration took place without any change in the frequency of the fatiguing stimuli, the conclusion follows that the time of restoration in a state of fatigue has been shortened. This conclusion was verified by various experimental biophysical and biochemical procedures. As sympathetic innervation of the muscle fiber itself was doubtful, an explanation had to be sought which would be independent of specific sympathetic fibers going to the contractile substance. The explanation was not difficult to find, as in our first experiments we were able to show that treatment of the muscle with epinephrine caused the same kind of restoration as did stimulation of the sympathetic nerves.

If, as we presumed, epinephrine was released during muscular contraction, we had to take into consideration the possibility that stimulation of sympathetic nerves brought about heat production in muscles. We were able to demonstrate the calorigenic effect of sympathetic stimulation in muscles in animals. We measured thermoelectrically the temperature in symmetrical muscles, one of which had its normal innervation, while on the other side the sympathetic nerves had been cut. We observed that eventually the side that was still in possession of its sympathetic innervation became warmer. I will not report on the various experiments performed to corroborate the result obtained, but draw attention only to the fact that this new work definitely shows that muscles partake in heat regulation even if they do not contract. Experiments conducted along different lines demonstrated that impulses created in the central nervous system under perfectly normal conditions reach the muscles by way of the sympathetic nerves, so that the latter participate also in muscular activity. In muscles whose only connection with the central nervous system is through sympathetic nerves in the muscles and in these nerves themselves action currents appear during natural reflexes. If one compares muscles having sympathetic innervation with muscles which have no sympathetic innervation after puncture of the heat center, invariably it is the side having sympathetic innervation that becomes considerably warmer.

These and allied experiments show the very considerable influence which the sympathetic nerves have even on striated muscles; and on glands this influence is still more noticeable. One would still be justified, however, in denying that a trophic nerve effect or influence had been demonstrated in the sense proper of this term. I will proceed, therefore, to discuss experiments that demonstrate a real trophic influence of the sympathetic nerves, by which term I mean that the state of the tissues is regulated by these nerves. I turn to the well known and classic region for the investigation of trophic influence, the cornea. If the cervical sympathetic in the rabbit is extirpated on one side, the eye on this side loses only this innervation, retaining its normal motility and sensibility. To test whether the two corneas react differently, we irradiate the two eyes with exactly the same intensity of quartz rays and for exactly the same length of time. When a certain intensity of the light rays is applied, the two corneas react differently. The eye without sympathetic innervation shows distinct ulcerations (best observed with the aid of the Gullstrand slit lamp), while the normal eye shows no harmful effect. If the intensity of the light is a little stronger, both eyes may show ulcerations; but the difference shows in the length of time required for restoration. At the time the eye with normal innervation becomes perfectly restored, the eye without sympathetic innervation is still in a state of distinct ulceration. These experiments seem to prove conclusively that the sympathetic nerves have a trophic influence. The tissue is evidently less able to withstand the harmful influence because the loss of the sympathetic innervation lowers the trophic power of the cells.

One is also able to demonstrate the trophic influence of the sympathetic in the skin. Intracutaneous injection of histamine will produce blebs in the skin. If one compares the reaction of the normal side with the side without sympathetic innervation and applies graded concentrations of histamine, it will not be difficult to find a concentration which will produce a large bleb on the side without the sympathetic, while on the other side nothing happens. If the concentration of histamine is increased, one may succeed in producing blebs on both sides. But on the side that is normally innervated the blebs will disappear very much sooner. Evidently the skin without sympathetic nerves has become less resistant. A possible explanation is that the more rapid absorption of the fluid in the bleb on the normal side is due to a state of higher permeability. Experiments which we did years ago had already led us to conclude that, by taking away the sympathetic, the permeability was decreased. Comparing the sodium chloride concentration either in the saliva or in tears, we always found the concentration lower on the side without the sympathetic, although there was no difference in the total amount of saliva or tears.

In a third series of experiments we compared the influence of x-ray irradiation on the growth of the bones of young growing rabbits. Every ten days roentgenograms were taken under exactly the same conditions of the bones of both sides. The roentgenograms showed that the development of the bone on the normal side was far greater than it was on the side on which the sympathetic had been excised. The presence

Read in the General Scientific Meetings at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 12, 1936.

of the sympathetic nerves had aided bone tissue to react more strongly to the irradiation.

We used Ellinger and Hirt's method of observing living tissues microscopically after the injection of fluorescent dyes. On the side without the sympathetics, not only the blood vessels but also the lymphatics were distended and the intensity of the color was much less. The latter fact is again a symptom of decreased permeability on the side without the sympathetic. The distention of the lymphatics is an expression of deterioration of the trophic state of the cells.

From a physiologic point of view, one would expect that functional changes would go hand in hand with changes in the trophic state of tissues. To investigate this question, we tested the excitability of parts of the nervous system in normal animals and after sympathectomy. In this type of experiment we used physical stimuli. We examined experimentally the influence of various intensities of light on the eye and measured the response by recording the action currents of the visual area in the brain. Here one cannot compare the two sides but must make observations before and after sympathectomy. Our results were definite. After sympathectomy for a given intensity of light the response of the visual area in terms of action currents was less. Far more striking was the earlier appearance of fatigue when the illumination lasted some minutes. Another suitable reaction is the reflex movement of guinea-pigs on acoustic stimulation by high pitched sounds. After sympathectomy a higher intensity is necessary to produce the reflex. Both series of experiments show that the sensitivity of sensory centers is regulated by the sympathetic nervous system.

I believe that with these facts we are warranted in attributing to the sympathetic nervous system a regulatory influence on the trophic state of tissues. However important the recognition of trophic innervation may be to physiology, it is still more important to pathology.

101 Effingerstrasse.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. HOWARD A. CARTER, Secretary.

FISCHERQUARTZ ULTRAVIOLET LAMPS, NOS. 12 AND 15, ACCEPTABLE

Manufacturer: The Fischer Corporation, Glendale, Calif.

The Fischerquartz Ultraviolet Lamps, Nos. 12 (Table Model) and 15 (Floor Model) have been submitted to the Council for consideration. According to the firm, these lamps are similar in construction to the Fischerquartz Ultraviolet Lamp, Model No. 77, which was accepted by the Council.[1]

Evidence was submitted by the firm, and substantiated by the Council's investigator, indicating that the burner of these two lamps was similar in construction to that of Model No. 77. Therefore it seems relevant to include in this report the radiation characteristics on Model No. 77 as previously published.

At a distance of 2 feet from the front edge of the quartz tube (the "burner") the energy flux of wavelengths shorter than and including 3,130 angstroms was 1,050 ergs per square centimeter per second (105 $\mu W/cm.^2$). Of this amount about 97 per cent is contained in the strong resonance emission line of mercury vapor at 2,537 angstroms. Assuming an erythemogenic efficiency of 50 to 55 per cent at the 2,937 angstrom line, the calculated time of exposure to produce a threshold (M. P. E.) erythema is about seven minutes.

Exposure of small areas (2 by 6 mm.) of the unpigmented inside upper arm at a distance of 2 feet from the lamp, for intervals of from five to twenty minutes, produced a decided reddening of the skin in seven minutes. The twenty-minute exposure was overexposed and sore to touch.

Since the erythema test was made on a skin of average pigmentation, it is evident that a blond-skinned person should not be exposed longer than about five minutes, at a distance of 2 feet from the burner of this type of lamp.

Fischerquartz Ultraviolet Lamps, Models 12 and 15.

The intensity of the ultraviolet radiation is above the minimum for acceptance adopted by the Council. With the understanding that this lamp is to be used for irradiation of the body (not applicable for cavity irradiation) for therapeutic purposes, under the guidance of a qualified physician, the lamp was recommended for acceptance by the Council's clinical investigator.

The Council wishes to make it clear that such a lamp has nothing in common with "sunlamps," and that it is no more applicable than other small therapeutic lamps for home use under the direction of a physician.

In view of the acceptable report on these two units, the Council on Physical Therapy voted to include the Fischerquartz Ultraviolet Lamps, Nos. 12 and 15, in its list of accepted devices.

FISCHERQUARTZ PORTABLE "COLD" MERCURY ARC LAMPS, NOS. 17, 78, 87 AND 95, ACCEPTABLE

Manufacturer: The Fischer Corporation, Glendale, Calif.

The firm describes these lamps as follows:

Model No. 17 Portable Fischerquartz Lamp.—Supplies ultraviolet radiation for general body treatments. The transformer, switch and attached cords are installed permanently in the case and sufficient space is provided for storing the burner within the case when not in use. The lamp bonnet is hemispherical, with a flat aluminum reflector across the front. The quartz tubing is attached to this reflector, and all connections are made within the bonnet, where they cannot come in contact with patient or operator. Same as Models No. 78, 87 and 95, only it is housed in carrrying case 15 by 16 by 5¼ inches. The shipping weight is 18½ pounds.

Model No. 78 Portable Fischerquartz Lamp.—Supplies ultraviolet radiation for general body treatments only. Body grid only. It cannot be converted into a No. 95 Combination Lamp. Complete shipping weight, 25 pounds. Size 8 by 15 by 22 inches.

Model No. 87 Portable Fischerquartz Lamp.—Supplies ultraviolet radiation for general body treatments only. It can be converted into a No. 95 Combination Lamp at any time by adding the orificial burner. Complete shipping weight 27 pounds. Size 8 by 15 by 22 inches.

Model No. 95 Portable Fischerquartz Lamp.—Supplies ultraviolet radiation for both orificial and general body treatments. Shipping weight 29 pounds. Size 8 by 15 by 22 inches.

These lamps have burners, reflectors, transformers, cords and switches of the same size and type as supplied in the previously accepted nonportable lamps, bearing the same catalogue numbers.[1]

Fischerquartz Portable "Cold" Mercury Arc Lamp No. 95.

Therapeutically, these lamps generate 150 F. U. (Finsen units) at 12 inches and will produce a perceptible erythema on untanned skin in 0.5 minute at 12 inches, 1.4 minutes at 20 inches and 3.1 minutes at 30 inches. The output of these lamps was checked with the ultraviolet photometer and found to be satisfactory. The power consumption is 63 watts.

The Council on Physical Therapy voted to include the Fischerquartz Ultraviolet Lamps, Portable Models 17, 78, 87 and 95, in its list of accepted devices.

1. Fischerquartz Ultraviolet Lamp, Model No. 77, Acceptable, J. A. M. A. **106**: 1806 (May 23) 1936.

1. Fischerquartz "Cold" Ultraviolet Lamps Acceptable, J. A. M. A. **103**: 1620 (Nov. 24) 1934.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

STATUS OF CATGUT SUTURES

AT THE REQUEST OF THE COUNCIL ON PHARMACY AND CHEMISTRY THE BOARD OF TRUSTEES GRANTED THE COUNCIL AN APPROPRIATION FOR THE PURPOSES OF SPECIAL INVESTIGATION OF COMMERCIAL CATGUT SUTURES.

THE LABORATORY WORK WAS DONE BY MR. JOHN H. BREWER FOR THE COMMITTEE ON CATGUT SUTURES OF THE COUNCIL UNDER THE DIRECT SUPERVISION OF THE CHAIRMAN OF THE COMMITTEE. THE COUNCIL DESIRES TO EXPRESS APPRECIATION TO THE COMMITTEE, AND PARTICULARLY TO THE CHAIRMAN, FOR THE AMOUNT OF EFFORT AND TIME HE DEVOTED TO THIS SUBJECT.

THE COUNCIL HAS ADOPTED THE FOLLOWING REPORT BY MR. JOHN H. BREWER AND AUTHORIZES ITS PUBLICATION.

IN VIEW OF THE FOLLOWING REPORT THE COUNCIL DESIRES TO ISSUE A WARNING AGAINST THE USE OF SO-CALLED CHEMICALLY STERILIZED SUTURES; IN THE OPINION OF THE COUNCIL IT IS BETTER TO USE ONLY HEAT STERILIZED SUTURES UNTIL MORE RELIABLE CHEMICAL PROCESSES HAVE BEEN DEVISED.

THE COUNCIL BELIEVES THAT ALL MANUFACTURERS SHOULD PLACE ON THEIR LABELS A DATE OF MANUFACTURE AND THAT PHYSICIANS SHOULD USE THOSE SUTURES WHICH BEAR A DATE MORE RECENT THAN OCTOBER 8, 1936, AT WHICH TIME THE REPORT WAS SUBMITTED TO MANUFACTURERS.

THE NAMES OF THE MANUFACTURERS REFERRED TO IN THE FOLLOWING REPORT WILL BE FURNISHED TO PHYSICIANS WHO MAKE INQUIRY.

PAUL NICHOLAS LEECH, Secretary.

THE PRESENT STATUS OF THE STERILITY OF CATGUT SUTURES ON THE AMERICAN MARKET

JOHN H. BREWER

REPORT OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION

The present survey[1] was undertaken with two objects in view: (1) to study critically the technic which has been heretofore employed in testing the sterility of catgut sutures, to modify this technic as might seem desirable and to describe it in such a manner that it might be of use to manufacturers of sutures and others interested in the control of these products; (2) to determine the status of sterility of sutures now available on the American market and especially of those recently manufactured in comparison with those on the market some years ago.

In reviewing the literature on the sterility of catgut sutures, one finds that before 1929 there was no recognized technic for testing sutures. Each of the manufacturers, if he employed sterility tests, had his own technic. Many of the methods did not employ anaerobic control or, if they did, the mediums were in certain cases incapable of sustaining growth of the more delicate anaerobes such as Clostridium oedematiens.

From the Department of Pathology and Bacteriology of the Johns Hopkins University, Baltimore.

1. The following information regarding the firms mentioned in the report is noted:

Firm 2 is no longer in existence. The Council has received information that no sutures have been manufactured by this firm since 1920, when it was taken over by another firm, and that the latter firm discontinued the preparation of tubed catgut in 1925, though through an oversight it was still advertising ligatures in 1936 in a medical journal.

The sutures marketed by firm 8 were actually manufactured for it by another firm and were not being sold by it at the time of this report. The firm merely sent the sutures for academic interest. Therefore, no direct responsibility is attached to firm 8 in this instance.

On October 30 firm 9 wrote that the old ligature material to which this investigation refers has been withdrawn from the market and that its ligatures and sutures are now being manufactured by the Heat Sterilization Method approved by the British Ministry of Health. The firm states that every batch of ligatures prepared is now tested bacteriologically by an outside bacteriologist. The Council commends the firm for its prompt action taken at the difficult period of reorganizing its pharmaceutical department. On November 17, 1936, firm 9 reported as follows: "We attach herewith the original certificates of tests on all Surgical Ligatures manufactured under our new process. All batches have proved Sterile when tested according to the Meleney-Chatfield technique by the independent Bacteriologist who tests all our material."

Bulloch, Lampitt and Bushill[2] in 1929 published an exhaustive report on the sterility of surgical catgut. It contains an excellent review of the literature on this subject. They included in this report a technic which was far superior to any that had been suggested previously. They were able to demonstrate that much of the commercial catgut was not sterile. This technic, the result of seven years' research, was immediately made a legal requirement of all catgut manufacturers in England.

In 1931 Meleney and Chatfield[3] published what they considered an effective technic for testing the sterility of catgut. It involved the use of a neutralizing solution containing 1 per cent sodium carbonate and 1 per cent sodium thiosulfate. The authors indicated the necessity of using other neutralizing reagents if antiseptics other than iodine or mercury were used. They used a properly controlled medium which sustained growth of Clostridium oedematiens in the fifth dilution. Following the publication of this work, some of the manufacturers awoke to the fact that many of the sutures which they were placing on the market were not sterile. Some of them changed their methods of sterilization, others have retired from the market. At present, all of the manufacturers who have been consulted employ the Meleney and Chatfield technic or modifications of it, the chief differences being in the use of additional controls or in the use of a different neutralizing agent.

Clock has published several papers in which he suggests certain modifications which seem to be of noteworthy value. The 1 per cent sodium carbonate and 1 per cent sodium thiosulfate are sufficient to remove the usual chemical substances, such as mercury, iodine and chloramine, provided they are present only in small quantities. Clock[4] has shown that this neutralizer is not sufficient to remove copper or large quantities of iodine as found in chemically sterilized iodized sutures containing from 12 to 15 per cent of these substances. Large quantities of mercury (3.5 per cent) cannot be removed readily by the 1 per cent neutralizer, but it has been found that a 10 per cent sodium thiosulfate solution is sufficient.

Using the 1 per cent neutralizer, my associates and I have found 15.4 per cent of the sutures from firm 8[5] contaminated. These sutures, made by firm 3 for firm 8, were withdrawn from the market and a quantity was sent to us for experimental purposes. A large number of these were tested by means of 10 per cent sodium thiosulfate and 23.6 per cent were found not sterile, or an increase of 8.2 per cent with the stronger neutralizer. This confirms the observation of Clock that a 1 per cent neutralizer is insufficient to remove large quantities of mercury.

For removing copper, Clock[4] has suggested the use of 5 per cent ammonium chloride and 0.5 per cent ammonium hydroxide. As an added step, it is suggested that an additional tube of distilled water be used to remove any neutralizer which otherwise might be carried over into the culture medium. He also suggests the use of several controls that prevent falsely positive results.

2. Bulloch, W.; Lampitt, L. H., and Bushill, J. H.: The Preparation of Catgut for Surgical Use, British Medical Research Council Special Report Series, 138, 1929.

3. Meleney, F. L., and Chatfield, Mabel: The Sterility of Catgut in Relation to Hospital Infections, with an Effective Test for the Sterility of Catgut, Surg., Gynec. & Obst. 53:430 (Feb., No. 2 A) 1931.

4. Clock, R. O.: The Fallacy of Chemical Sterilization of Surgical Catgut Sutures, Surg., Gynec. & Obst. 58:149, (Feb.) 1933.

5. Information obtained from manufacturers of sutures is given in table 1.

Before attempting this survey, it was necessary to determine the chemical nature of the various sutures. It was important to know the types of tubing fluid and the method of sterilization used by the various manufacturers.

Firms 1, 6, 7, 9, 10, 11, 12 and 14 were asked to furnish the following information:

1. The detailed method of sterilization employed to render the sutures sterile.

2. A quantitative statement of the tubing fluid in which the sutures are immersed.

3. If chemical sterilization is employed, a statement of the qualitative determinations of copper, mercury or iodine that are employed; also the quantitative upper and lower limits of the amount of mercury with which the suture is impregnated or which may adhere to the suture after its removal from the tubing fluid. If the suture is not suspended in fluid and is impregnated, a statement of the amount in the suture is desired.

The information needed was in most instances obtained in this manner, and it was found that all the companies employ heat sterilization except in one instance. One manufacturer (firm 9) chemically "sterilizes" iodized sutures. The tubing fluid in nearly all cases contained potassium mercuric iodide 1:1,000. Xylene, chloroform, toluene and alcohols in varying proportions were

TABLE 1.—*Information Obtained from Manufacturers of Sutures*

Firm	Question 1 Method of Sterilization	Question 2 Tubing Fluid Used	Question 3 Regarding Chemical Sterilization
1	Boilable sutures are coiled, placed in glass tubes and dehydrated. The tubes are then filled with the tubing fluid and hermetically sealed by fusion of the glass. The sealed tubes are submerged in a bath of cumol in an autoclave and the heat applied in progressive steps until the maximum temperature is maintained for the requisite period (time and temperature not stated)	Boilable sutures: toluene or xylene	Chemical sterilization is not employed in the preparation of any (firm 1) suture, intensive heat sterilization being used exclusively
	Nonboilable sutures are coiled, placed in tubes, dehydrated, covered with cumol, placed in the autoclave and the heat applied as for the boilable type. After sterilization the cumol is removed from the tubes with aseptic technic, the tubing fluid is added and the tubes sealed in the flame	Nonboilable sutures: ethyl alcohol, 100 gallons; potassium iodide, 80 Gm., and red mercuric iodide, 109 Gm.	
6	Nonboilable sutures are coiled, placed in tubes and labels enclosed. The tubes are then immersed in a cold bath of hydrocarbon oil and heated gradually to 310 F. (154 C.), held at that temperature not less than one hour and allowed to cool. When cold, the tubes are removed from the bath, the hydrocarbon oil drained, the tubing fluid added, and the tubes sealed	Nonboilable sutures: 97 parts by volume absolute ethyl alcohol, 3 parts by volume sterile water. Potassium mercuric iodide	All sutures labeled sterile are heat sterilized. Copper or any of its compounds is not used
	Boilable sutures are coiled, placed in tubes with the label and tubing fluid added. The tubes are then sealed, placed in a bath of oil and sterilized by means of the same heating technic as for nonboilable sutures	Boilable sutures: Chemically pure xylene	
7	Nonboilable and boilable sutures: The catgut is coiled and placed in presterilized glass tubes and then dehydrated. The tubes are submerged in an anhydrous hydrocarbon fluid and autoclaved at a required temperature for a required period of time (time and temperature not given). The sterilization fluid is drained from the tubes and the tubing fluid added. They are then flame sealed. The boilable variety is subjected to a second autoclaving after sealing	Nonboilable sutures: 95% ethyl alcohol with 1:1,000 red mercuric iodide Boilable sutures: Absolute isopropyl alcohol 30%, benzene 45%, amalle oil 5%	No copper in any form is used in the manufacture of (firm 7) sutures
9	Nonboilable sutures are wound on reels, placed in open tubes and dehydrated. They are then placed in an oil sterilizer and the temperature of the bath brought to 300 F. (148 C.) and held for one hour. After cooling the oil is removed and the tubing fluid added. The tubes are sealed and inspected	Nonboilable sutures: Pure grain alcohol containing 0.3% potassium mercuric iodide	
	Boilable sutures are treated the same except that the ligatures are covered with xylene and sealed prior to heat sterilization (320 F. for one hour)	Boilable sutures: Xylene	No copper or copper salt is used
	Iodized sutures are made by treating moist gut in an aqueous iodine solution for a sufficient time to insure a total iodine content of from 12 to 15% in the finished product. The dried polished ligatures are placed on reels in tubes and covered with a storing fluid. These sutures are not heat sterilized	Iodized sutures: Chloroform containing 0.3% of resublimed iodine	Impregnated with iodine until the sutures contain 12 to 15% iodine
10	Nonboilable sutures: Sutures are dehydrated in vacuum dryers and sterilized by heating in petrolatum oil to the temperature of 320 F. (160 C.) on successive days. This temperature is held for one hour. The tubes are then filled with the tubing fluid and hermetically sealed	Nonboilable sutures: 1% iodine, 3% xylene in absolute alcohol Storing fluid for sutures with needles attached is 40% methyl and 60% ethyl absolute alcohols	Copper is not used in any form
11	Nonboilable sutures: The sutures after dehydration are submerged in a coal tar benzine which has a boiling range of approximately 165 to 180 C. The temperature of this bath is brought up gradually until it reaches 320 F. (160 C.) and is held for one hour. After sterilization the coal tar benzine is replaced with tubing fluid and the tubes are sealed	Nonboilable sutures: Potassium mercuric iodide 1:1,000 in approximately 95% alcohol	No chemical sterilization is employed
12	Boilable sutures are coiled *(sterility control Meleney-Chatfield method number is stamped on each reel), placed in glass tubes and dehydrated. The tubes are then filled with the fluid, hermetically sealed, placed in an autoclave and heat in progressive steps applied to insure sterility.	Boilable sutures: Special Naphtha; boiling point 180-195 C.	Chemical sterilization is not employed; intensive heat sterilization used exclusively
	Nonboilable sutures are coiled *(sterility control Meleney-Chatfield method number is stamped on each reel), placed in tubes, dehydrated, covered with Special Naphtha, placed in the autoclave and heat applied as for the boilable type. After sterilization the Special Naphtha is removed from the tubes with aseptic technic, the tubing fluid added and the tubes sealed in the flame	Nonboilable sutures: U. S. government formula 42—Denatured alcohol specified by Treasury Department Bureau of Industrial Alcohol to be used in the manufacture of ligatures and sutures.	
14	Nonboilable sutures: the sutures are wound into 3 inch coils dehydrated at a temperature of 107 C. These small coils are placed in a basket and lowered into a bath of cumol. The temperature of this bath is brought to 300 F. (148 C.) and held for one hour. After cooling these coils are removed from the cumol under aseptic conditions and placed in an alcoholic potassium mercuric iodide solution over night. They are then cut to length, wound into smaller coils and placed in small glassine envelops and packed in the final storage jars in a storage fluid	Nonboilable sutures: Storage fluid is formula 42 denatured alcohol: 100 gallons of ethyl alcohol, 80 Gm. of potassium iodide U. S. P. and 109 Gm. of red mercuric iodide	No chemical sterilization employed except as supplied by the tubing fluid

* The sterility control number stamped on each reel also indicates date of manufacture and number of ply. Sterility control number is also stamped on the outside of the finished stock package.

used as the tubing fluids. The temperatures for heat sterilization varied from 300 to 320 F. (149 to 160 C.). This information is presented in table 1.

Sutures examined have been obtained from the manufacturers, bought in the open market or from hospital supply rooms. A few of the sutures examined are known to have been in stock for more than ten years. These are of special interest in that some of them were found nonsterile, although they were stored in heavily laden mercuric tubing fluid. Not all the brands of sutures to be found on the American market were examined, but all of those recently advertised in the leading medical and surgical journals were given thorough study.

The general procedure for this survey has been, first, to test all the sutures according to the technic of Meleney and Chatfield; then to test the same type of sutures using the additional controls and neutralizing agents suggested by Clock, except in the instance of sutures in which copper was used.

All transfers were made in a "dust-proof" chamber. The bacterial content of the air within the chamber was checked by exposing blood agar plates, throughout the period of transfer, directly in front of the operators in the vicinity in which the transfers were being made. These exposed blood agar plates were incubated aerobically and anaerobically. The anaerobic plates were incubated in a Brown[6] jar. An unexposed plate was incubated along with each exposed plate to serve as a control. The plates had from 0 to 7 colonies after forty eight hours' incubation. The average was 1.53 colonies per plate. This would indicate that the air in the room was relatively free from bacteria. Since the actual time of transfer for each suture required less than a second, and the surface exposed was much less than the surface of the blood agar plate, the chance of an air contaminant entering was slight. This is borne out by the fact that although more than 3,100 transfers were made only two sutures showed growth of the same type of organism, which appeared on the blood agar plates exposed during the time when the sutures were being handled. Throughout the survey, 76 per cent of the organisms that grew on the blood agar plates were cocci and in only two instances were cocci recovered from the sutures.

The culture medium used for the sutures was similar to that used by Meleney and Chatfield and by Clock. The medium consists of meat infusion broth containing 1 per cent peptone, 0.5 per cent sodium chloride, 1 per cent dextrose and 2 per cent gelatin. The final reaction is p_H 7.4. To the anaerobic medium 0.1 per cent azolitmin is added. It is the original formula of Novy except that, instead of 1 per cent of litmus, 0.1 per cent of azolitmin was used for the anaerobic medium. The medium is tubed in 40 cc. amounts in test tubes 25 by 210 mm. and is sterilized in the autoclave.

Following is a detailed account of the technic used, which is based on that of Meleney and Chatfield with modifications suggested by Clock or found advisable during this survey. For purposes of comparison, the various procedures are numbered to correspond with those of Meleney and Chatfield.[3]

1. Two operators wearing sterile hoods and gowns make transfers in a dust-free room, which is washed down with a disinfectant (saponated solution of cresol) each time a set of transfers is to be made and allowed to remain closed fifteen minutes before use.

2. The sutures to be tested are registered and the following information recorded:

Firm Name:		No.:
Purchased or received from:		
Type of Suture:		
Company Desig:		Lot or Lab. No.:
Size:		Boilable or Nonboilable
Dist. water:	Neutralizer:	Mediums:
Results:		
Anaerobic		Culture No.:
Aerobic		Culture No.:
Date started:		
Remarks:		

A file mark is made about one-half inch above the tubing fluid. The tubes are numbered with a diamond point and set in a small test tube rack. In the dust-free room just before the transfer is to be made, the tube is flamed at the filed line so that it may be broken without risk of contaminating the suture. When sutures in envelop containers are being tested, one margin of the envelop is flamed and cut with previously flamed scissors (same technic as for sterilizing transfer forceps).

3. The tube is cracked at the filed line by holding a red-hot curved wire against it. A pair of long, previously sterilized, forceps are dipped in alcohol and flamed. The upper part of the cracked tube is removed by grasping it with the back part of the forceps; then the entire suture is seized with the points of the forceps and dropped into a large cotton plugged test tube containing 40 cc. of sterile distilled water.

4. The tube is incubated for twenty-four hours at 37 C.

5. The catgut is then transferred to a test tube containing 40 cc. of sterile 1 per cent sodium thiosulfate and 1 per cent sodium carbonate and again incubated for twenty-four hours.

6. Shortly before use, the culture medium for the anaerobic tubes is allowed to remain in flowing steam for fifteen minutes or more, so that the air is driven out and the litmus is decolorized. The aerobic tubes must be taken from the refrigerator and placed in warm (37 C.) water so that the medium will be liquid.

7. The petrolatum (melting point, 48 C.) sealing material kept in a specially designed closed copper funnel fitted with a hooded stopcock is sterilized in the hot air oven for two hours at 165 C. and, if it becomes too cold before use, it may be placed in the flowing steam along with the anaerobic mediums. We have obtained good growth in our controls using a petrolatum of this melting point and find no advantage in using a mixture of petrolatum and paraffin such as was used by Novy, by Meleney and Chatfield and by Clock.

8. The catgut is then transferred to the tube of medium cooled to 37 C., and the tubes to be incubated anaerobically are sealed by flowing on a layer of sterile petrolatum 2 or 3 cm. thick. The sealed tubes are immediately placed in a cool water bath to solidify the seal. In order that a large quantity of oxygen may not reenter the heated tubes before the petrolatum is added and solidified, only fourteen sutures are tested in a group. It consumes about fifteen minutes from the time the tubes come from the autoclave or steam bath until they are sealed.

9. The tubes are incubated at 37 C. for fifteen days and are examined daily for growth.

10. The medium is tested for sterility by incubating two of every sixteen tubes for the full time of the test, one aerobic tube and one anaerobic tube. The distilled water and the neutralizing solutions are also tested for sterility by culturing 10 cc. amounts, aerobically and anaerobically. These have always been found sterile. The growth-producing properties of each lot of medium are controlled by a series of six tubes planted with decimal dilutions of an active culture of Clostridium oedematiens. If growth does not appear in all tubes including the fifth dilution, which is 0.00001 cc. of the original culture, the medium is considered inferior, and not used. It is our opinion that Clostridium oedematiens or some one of the more strict anaerobes should be used as the control organism rather than Clostridium sporogenes as used by Clock. Several of the suture manufacturers use other organisms which are not strict anaerobes. Meleney and Chatfield[3] suggest that, if a pathogenic species cannot be used, Clostridium sporogenes should be substituted for Clostridium oedematiens. In sending a subculture of the original Novy strain of Clostridium novyi (Clostridium oedematiens) isolated in 1893, Dr. M. H. Soule[7]

6. Brown, J. H.: An Improved Anaerobe Jar, J. Exper. Med. 33: 677 (June) 1921; 35: 467 (April) 1922.

7. Soule, Malcolm: Personal communication to the author from Hygienic Laboratory, University of Michigan.

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informs me that the strain is no longer pathogenic. Since this organism is one of the most strict anaerobes and this strain is nonpathogenic, it would seem to be the ideal strain for control work in this test.

11. In order to prove that chemical substances in sufficient strength to inhibit bacterial growth have not been carried over with the suture into the tubes of culture medium, the test organism in a 1:100,000 dilution is planted in all tubes that have remained negative throughout the test. I do not agree with Meleney and Chatfield that this should be only an occasional test.

In cases in which large amounts of mercury or iodine are known to be present, Clock [8] suggests using 10 per cent sodium thiosulfate as the neutralizing fluid. He suggests that this be used in addition to the regular technic so that the thiosulfate will be removed by the distilled water, which is the first step in the regular procedure. I am unable to gather from his paper [8] his exact procedure but, presumably, he then puts the suture through 1 per cent sodium thiosulfate, then to medium. I have found by chemical test that the suture takes up sufficient thiosulfate from the 10 per cent solution and that carrying it subsequently through the 1 per cent solution is not necessary. When using the 10 per cent sodium thiosulfate, I have found that nothing is gained by allowing the suture to soak in distilled water twenty-four hours before placing it in the neutralizer. It has been the policy in the latter part of this survey to place the suture directly into the 10 per cent sodium thiosulfate for twenty-four hours, then into distilled water for an additional twenty-four hours and then into the medium. This has proved very satisfactory, as shown in the case of the firm 8 sutures. We have found that there is 0.0004 Gm. of sodium thiosulfate more per 0.4 Gm. suture weight taken up by the sutures if they are not allowed to soak in distilled water first. Also, all the iodine (15 per cent) in an experimental batch of sutures was neutralized by this method. It has been found that the amount of thiosulfate, after the distilled water washing, which may be carried over into the medium is not bacteriostatic.

In consideration of the British therapeutic substances procedure, the Meleney and Chatfield or any similar technic, one is at once doubtful of the possibility of transferring, several times through the air, anything so large and unwieldly as a catgut suture and expecting it not to become contaminated from the air. Therefore, in making this survey—a combination of the beforementioned methods being used—the greatest care has been given to guard against such contamination. The room in which the transfers were made was small and could easily be scrubbed down with a disinfectant. All the equipment taken into the room was sterilized. The tubes of medium, neutralizers and wash water were sterilized in cans covered by paper hoods so that no dust might settle on the cotton plugs and be scattered into the air as the plugs were withdrawn and the transfers made. The plugs were kept covered also during the initial incubations until the last transfers had been made.

Another point for consideration is the method used in sterilizing the forceps between transfers. Meleney and Chatfield [3] suggest that the forceps be flamed before the transfer is made. They suggest that they may be dipped in alcohol to insure complete flaming. Clock [8] says "The actual transfer of the sutures is made with a pair of obstetrical dressing forceps which has been boiled for one-half hour, then immersed in ethyl alcohol and thoroughly flamed. Between each transfer the forceps is immersed in alcohol and thoroughly flamed." Some of the spores found in dust are not killed by boiling and I have found that a much more satisfactory method for the preliminary sterilization is to wrap the forceps in paper and sterilize them in the hot air oven at 170 C. for two hours along with the graduate for the alcohol. Hill,[9] a proponent of the method of dipping instruments in alcohol and flaming them for sterilization, claims that this method will kill anthrax spores. Sanderson [10] found that he could not confirm Hill's work. Since he was unable to kill anthrax spores by alcohol flaming, he attempted to show that the temperature was not high enough for sterilization by dipping an ordinary chemical thermometer in alcohol and allowing it to burn off. He reports a temperature of only 60 C. registered by the thermometer. He states, however, that a mixture of alcohol and formaldehyde solution gave a temperature of 133 C. This would be inadvisable for catgut work, since the introduction of traces of formaldehyde into the medium might be bacteriostatic. Sixty degrees did not seem to be an accurate temperature for alcohol burning on the surface of instruments, nor did Sanderson's method of attacking the problem seem conclusive; therefore an attempt was made to get a more accurate reading of the surface temperature of the forceps by using a small platinum-rhodium-platinum thermocouple. By this means, after the alcohol flaming of forceps the temperature of the surface of the metal was found to be about 180 C. Although sufficient work was not done to satisfy ourselves as to the value of this method of sterilization, it is unlikely that any organisms will be introduced from a pair of forceps which has been sterilized at 170 C. for two hours and flamed between transfers. It must

TABLE 2.—*Results from all Sutures Tested*

Firm	Method of Sterilization	Number of Sutures Tested	Number Found Not Sterile	Nonsterile Sutures, Method of Cultivation: Aerobic	Nonsterile Sutures, Method of Cultivation: Anaerobic
1	Heat	191	0	..	..
2	?	12	4	3	1
3	?	28	1	1	..
4	?	22	4	3	1
5	?	2*	0	..	..
6	Heat	126	4†	1	3
7	Heat	160	0 (1)‡	..	..
8	?	52	12§	5	7
9	Heat or chemical	143	5 (1)‡	2	3
10	Heat	92	0	..	..
11	Heat	72	0	..	..
12	?	2*	0	..	..
13	Heat	94	0	..	..
14	Heat	24	0	..	..
Totals		1,020	30	15	15

* Only two available—tested only because they were made prior to the advent of the Meleney-Chatfield technic. It is not implied that only two sutures from a firm are sufficient to establish the sterility of that firm's product.

† The four nonsterile sutures from firm 6 were from one box of twelve sutures obtained from the local market and were known to be old stock. They were manufactured before the present methods of sterility testing were advocated. Sutures from firms 6 and 13 are now made in the same laboratory, but the twelve sutures referred to above were manufactured before the merger of firms 6 and 13 was effected. It is interesting to note that 114 sutures obtained from fresh stock made since 1933 by this firm were sterile.

‡ The two sutures indicated in parentheses showed growth which was of the same type of organism (Staphylococcus aureus) found as an air contaminant on the blood agar plates exposed at the time these transfers were made and therefore are not considered as nonsterile sutures.

§ Since these results were obtained, sutures from firm 8 have been withdrawn from the market.

8. Clock, R. O.: A Reliable Method for Testing the Sterility of Surgical Catgut Sutures, Surg., Gynec. & Obst. 61:789 (Dec.) 1935.

9. Hill, H. B.: J. Applied Microscopy 3, No. 8.

10. Sanderson, E. S.: A Note on the Sterilization of Surgical Instruments, J. Lab. & Clin. Med. 7:360 (March) 1922.

be remembered that these transfers were made in filtered air, under rigid asepsis.

One thousand and twenty sutures have been tested for sterility and a summary of the results is given in tables 2 and 3.

Firms 2, 3, 4, 5 and 8 no longer manufacture sutures, but some of their products may still be found on the market.

It may be of interest to note that firm 3 was successor to firm 4 and that the sutures from firm 8 were manufactured by firm 3.

Sutures of firms 10, 11, 13 and 14 manufactured before the advent of the Meleney and Chatfield technic (1933) were not available for this study. No comparison therefore can be made of the older and newer sutures manufactured by these companies.

Twenty-six of the thirty-two organisms isolated were gram-positive aerobic spore formers, most of them being members of the cereus or subtilis groups, and several were unidentified.

Two of the remaining six organisms were gram-positive cocci and were the same types as were picked up on the blood agar control plates at the times these transfers were made; therefore they are not to be considered as derived from nonsterile sutures.

Of the remaining four organisms, two died before identification was completed and the other two were nonidentifiable anaerobes which were found to be nonpathogenic for guinea-pigs.

The important consideration regarding the work of Meleney and Chatfield is not that they found 12.5 per cent of the sutures which they tested nonsterile but the fact that seven firms of the seventeen represented had placed nonsterile products on the market. Several of these manufacturers were not making sutures at the time the survey was made but their products were still on the market.

Clock has purchased, on the open market for the past five years, twelve American brands of catgut. He has found seven brands to be uniformly sterile and five brands nonsterile, except that for one year (1933) he found eight brands sterile and four nonsterile.

Of the fourteen brands tested in the present survey, sutures of six firms were found not sterile. Four of the fourteen firms no longer manufacture sutures.

TABLE 3.—*Results from Recently Manufactured Sutures*

Firm	Method of Sterilization	Number Tested	Nonsterile
1	Heat	128	0
6	Heat	114	0
7	Heat	134	0
9*	Heat or chemical	142	5
10	Heat	92	0
11	Heat	72	0
13	Heat	94	0
14	Heat	24	0
Totals		800	5

* See statement concerning firm 9 in footnote 1.

When recent products of the other firms were examined, only one of the firms was found to have nonsterile sutures among those examined. There may be still on the market some old nonsterile sutures from some of these manufacturers, but sutures made by these companies since the advent of the Meleney and Chatfield technic have been found sterile, as is shown in the case of firm 6. Failure to distinguish between sutures recently manufactured and those in stock for some time may account for Clock's results in continuing to find products of five companies nonsterile. In the case of some of the companies, the date of manufacture is printed on the box along with the sterility seal, while with other brands it is practically impossible to learn the date of manufacture.

Since most of the organisms isolated from the sutures were aerobic spore formers, one is likely to suspect that these organisms may have been introduced as contaminations during transfer for the sterility test and that the sutures may have been sterile before being opened. The following facts indicate that the results were not due to contamination at the time of testing:

TABLE 4.—*Comparison of Results Obtained by Various Investigators*

	Number of Sutures Tested	Number of Nonsterile Sutures	Number of Firms Represented	Number of Firms with Nonsterile Sutures
Meleney and Chatfield..	174	22 (12.5%)	17*	7 (41%)
Clock	6,184	Not stated	12†	5 (42%)
Present survey	1,020	36 (3.6%)	14*	6 (43%)
Sutures known to have been manufactured since the firms have been using the Meleney and Chatfield or a similar technic, present survey..	800	5 (0.6%)‡	8§	1 (12.5%)

* Several of the firms represented were no longer manufacturing sutures at the time these surveys were made but their products were available on the market.

† It is not stated whether these firms were continuing to manufacture sutures, but Clock does state that these firms had sutures on the open market at the time his survey was made. He does not mention the date of manufacture.

‡ These five nonsterile sutures were from 142 sutures tested for the same firm.

§ These are the major suture manufacturers whose advertisements appear in current issues of the leading American surgical and medical journals.

At the same time that the nonsterile sutures from firm 8 were tested, sutures from firms 1, 5 and 7 were also tested and these sutures were found sterile throughout the survey. The four sutures from firm 6 which showed growth were all from the same box of sutures, which were known to have been manufactured previously to the time this firm started using the Meleney and Chatfield technic. These nonsterile sutures were all found at different times while other sutures, which remained sterile throughout the survey, were being tested.

The sutures from firm 2, of which 33 per cent were found to be nonsterile, were all manufactured before rigid tests for sterility were employed.

Sutures from firms 3, 4 and 8, which were manufactured in the same plant, showed contaminations of 3, 18 and 23 per cent respectively. All the nonsterile sutures from firms 3 and 4 were found at different times, when sutures from other firms tested at the same time remained sterile. The nonsterile sutures of firm 4 were all from the same carton.

Four of the five nonsterile sutures of firm 9 were received in the same shipment and their lot numbers were very close, although the date of manufacture was not given.

Interesting conclusions may be drawn from the data in table 4.

When considering all the sutures tested in the three surveys, one instantly notes that practically the same proportion of manufacturers were found to have nonsterile products. If only sutures of recent manufacture are considered, the percentage of firms placing nonsterile products on the market drops from 43 to 12.5, indicating that fewer nonsterile sutures are now being

manufactured. Of the thirty nonsterile sutures found in this survey, twenty-five were from the 220 old sutures examined and five were from the 800 sutures of recent manufacture.

While it is apparent that there is need for adequate control of the sterility of catgut sutures manufactured and sold in America, I am of the opinion that the publication of the results of Meleney and Chatfield and of Clock may have had considerable influence in improving the quality of sutures now being manufactured, so far as sterility is concerned.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

(1) GRIDLEY FAST FROZEN ORANGE ICE
(2) GRIDLEY FAST FROZEN LEMON ICE
(3) GRIDLEY FAST FROZEN PINEAPPLE ICE
(4) GRIDLEY FAST FROZEN MINT ICE
(5) GRIDLEY FAST FROZEN RASPBERRY ICE
(6) GRIDLEY FAST FROZEN STRAWBERRY ICE
(7) GRIDLEY FAST FROZEN ORANGE SHERBET
(8) GRIDLEY FAST FROZEN LEMON SHERBET
(9) GRIDLEY FAST FROZEN PINEAPPLE SHERBET
(10) GRIDLEY FAST FROZEN MINT SHERBET
(11) GRIDLEY FAST FROZEN RASPBERRY SHERBET
(12) GRIDLEY FAST FROZEN STRAWBERRY SHERBET

Manufacturer.—Gridley Dairy Company, Inc., Milwaukee.

Description.—(1) Basic frozen mix containing water, sugar, citric acid and gelatin; flavored with emulsions of orange oil (U. S. P.) and glycerin, and lemon oil, water, gum arabic, and glycerin, and U. S. Department of Agriculture certified color.

(2) Basic frozen mix flavored with lemon oil emulsion.

(3) Basic frozen mix flavored with crushed pineapple.

(4) Basic frozen mix flavored with emulsion of oil of peppermint (U. S. P.) and glycerin, and U. S. Department of Agriculture certified color.

(5) Basic frozen mix with fresh or frozen raspberries and U. S. Department of Agriculture certified color.

(6) Basic frozen mix with sweetened cold pack strawberries and U. S. Department of Agriculture certified color.

(7) Same as (1) with added ice cream mix (THE JOURNAL, Sept. 7, 1935, p. 801).

(8) Same as (2) with added ice cream mix.

(9) Same as (3) with added ice cream mix.

(10) Same as (4) with added ice cream mix.

(11) Same as (5) with added ice cream mix.

(12) Same as (6) with added ice cream mix.

Manufacture.—The ingredients of the basic frozen mix are thoroughly mixed, frozen, packaged and hardened as described for Gridley Fast Frozen Ice Cream (THE JOURNAL, Sept. 7, 1935, p. 801). In the case of sherbets, the ice cream mix is added when the mixture is partly frozen.

Analysis (submitted by manufacturer).—(Orange Ice) moisture 66.9%, total solids 33.1%, ash 0.03%, fat 0.0%, protein (N × 6.25) 0.1% and carbohydrates (by difference) 32.9%. (Orange Sherbet) moisture 65.7%, total solids 34.3%, ash 0.10%, fat 1.0%, protein (N × 6.25) 0.3% and carbohydrates (by difference) 33.0%.

Calories.—1.3 per gram; 37 per ounce.

SEXTON BRAND APRICOTS, JUICE PACKED

Manufacturer.—John Sexton & Company, Chicago.

Description.—Canned apricots, packed in juice.

Manufacture.—Santa Clara Valley apricots, sprayed only before blossoming period, are harvested at maturity, inspected, washed, graded, cut, pits removed, sorted, again washed, and placed in cans, mechanically filled with juice, exhausted, sealed and processed at 88 C.

Analysis (submitted by manufacturer).—(Analysis of entire contents including liquid): moisture 86.2%, total solids 13.8%, ash 0.7%, fat (ether extract) 0.1%, protein (N × 6.25) 0.6%, crude fiber 0.4%, carbohydrates (by difference) 12.0%.

Calories.—0.51 per gram; 14 per ounce.

Claims of Manufacturer.—For diets in which sweetened fruit is proscribed.

CHOC-LADE DAIRY DRINK SYRUP

Manufacturer.—Siren Mills Corporation, Chicago.

Description.—A syrup containing sucrose, invert sugar, cocoa, starch-free powdered cane sugar, salt and vegetable emulsifying agent.

Manufacture.—Formula: Water 33.9%, sucrose 27.4%, invert sugar 23.6%, cocoa 8.2%, starch-free powdered cane sugar and dried extracts of marine plants 6.7%, salt 0.23%, vanillin 0.07%. Selected cocoa beans are roasted, and the shells are removed; nibs are blended, and milled to produce chocolate liquor. Some cocoa butter is removed, leaving a cocoa cake which is pulverized and bolted through fine silk.

Starch-free powdered cane sugar, dried extract of marine plants and 40 per cent of the water are mixed until a smooth suspension is obtained. Remaining water, sugar, cocoa, invert sugar and salt are mixed, boiled, and vanillin is added; the mixture is cooled slightly and the suspension of sugar and extracts is added. Constant agitation is continued until the batch is cool. The syrup is canned.

Analysis (submitted by manufacturer).—Moisture 39.7%, ash 0.7%, fat (ether extract) 1.2%, protein (N × 6.25) 1.2%, reducing sugars as invert sugar 17.9%, sucrose (copper reduction method) 33.0%, crude fiber 0.3%, carbohydrates other than crude fiber (by difference) 56.9%, caffeine and theobromine 0.12%.

Calories.—2.43 per gram; 69 per ounce.

Claims of Manufacturer.—For preparation of special Choc-Lade beverage in accordance with specific license contracts and conditions of preparation.

1. COLONIAL BRAND PINEAPPLE JUICE
2. SOUTHERN MANOR BRAND CRUSHED, SLICED AND SPEARS PINEAPPLE

Distributor.—D. Pender Grocery Co., Norfolk, Va.

Packer.—Hawaiian Pineapple Company, San Francisco.

Description.—1. Canned Hawaiian pineapple juice retaining in high degree the natural vitamin content; the same as Dole Hawaiian Finest Quality Pineapple Juice (Unsweetened) (THE JOURNAL, June 3, 1933, p. 1769).

2. Canned pineapple packed in concentrated pineapple juice with added sucrose. The same as Dole canned pineapple (THE JOURNAL, April 8, 1933, p. 1106).

CLOVER FARM BRAND TOMATO JUICE

Distributor.—Clover Farm Stores, Cleveland.

Packer.—Vincennes Packing Corporation, Vincennes, Ind.

Description.—Pasteurized tomato juice with added salt; retains in high degree the vitamin content of the raw juice; the same as Alice of Old Vincennes Tomato Juice (THE JOURNAL, Feb. 20, 1932, p. 640).

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SATURDAY, FEBRUARY 27, 1937

THE EFFICIENCY OF SERODIAGNOSTIC TESTS FOR SYPHILIS

Two years ago an evaluation was made of serodiagnostic tests for syphilis and modifications of such tests as had been originally described by serologists in the United States.[1] On the basis of specificity and sensitivity, the original tests as performed by the workers who described them were found to be efficient as laboratory procedures in the detection of syphilis. In the first study consideration was not given to the adaptability of the various tests as they might be performed by workers in state and local laboratories.

Recently the second report of the Committee on Evaluation of Serodiagnostic Tests for Syphilis has been published.[2] In it is described a project in which the directors of thirty state, municipal and private laboratories undertook fifty-one performances of nineteen separate serodiagnostic methods. Eight of these methods were those described by serologists who had participated in the first study to evaluate original tests. For each of these eight methods a control examination was performed by the serologist who originally described the test. The Kolmer complement fixation test was the one most frequently performed, being chosen by fourteen of the thirty participating laboratories. The Kahn standard flocculation test was selected by twelve laboratories, the Kline diagnostic flocculation test by seven, the Kahn presumptive and the Kline exclusion flocculation tests by two laboratories each and the Eagle, the Hinton and the Johns flocculation tests by one laboratory each. The eleven remaining performances comprised a heterogeneous group of serologic tests which had not been given consideration in the first study and with the exception of the Eagle complement fixation and the Micro-Hinton flocculation tests control examinations were not made for this group. The specimens submitted in the second project are not, of course, entirely comparable. Because of the difficulties encountered in collecting comparable samples for all participants, it was found necessary to establish four separate groups of serologists. The serologists in each group received comparable samples from the same series of donors. Since different donors were used in each series, comparison cannot be drawn between the percentages of sensitivity and specificity for the methods that were evaluated.

Careful study of the tables which are presented in the second report shows that in some of the state and local laboratories the performance of serologic tests does not compare favorably with the results achieved in the laboratories of the originators of the methods. In some of the former laboratories, false positive reports were made in from 3 to 9 per cent of specimens from nonsyphilitic persons. In others the sensitivity of the tests dropped to an alarmingly low percentage.

The results achieved in other state and local laboratories, however, are quite comparable to those obtained with the control performances. Special note should be made of the apparent efficiency of a micromodification of the Hinton test. This test attained a sensitivity of almost 92 per cent and a specificity of 100 per cent as compared with a sensitivity of almost 89 per cent and a specificity of 100 per cent as attained by Hinton running the control. This micromodification of the Hinton test should be given careful study in the future because of the great practical value of an efficient serologic test for syphilis requiring only a small amount of blood serum for its performance.

Also to be noted is the performance of one laboratory in the Kolmer complement fixation series. This laboratory attained a sensitivity of 71.4 per cent and a specificity of 100 per cent, as compared with the 59 per cent sensitivity and the 100 per cent specificity rating of the control performance by Kolmer.

One laboratory in the Kahn series attained good results with a rating of 78.5 per cent for sensitivity and 100 per cent for specificity in contrast with 75.7 per cent sensitivity and 100 per cent specificity for the control performance by Kahn. The examples which are cited indicate the fact that a serologic test for syphilis can, under conditions of routine performance, be perfect with regard to specificity and at the same time have a reasonably high degree of sensitivity. There is no question but that specificity is the most important requirement of a serologic test for syphilis because of the frequency with which such tests are depended on by the physician in private practice in clinching the diagnosis of syphilis, particularly in the latent stage.

The performance of other laboratories participating in this project indicates the usual tendency of serologic tests to become less sensitive when specificity is increased or less specific when sensitivity is increased. Much of this undesirable trend away from specificity and sensitivity is due to individual peculiarities of tech-

1. Cumming, H. S.; Hazen, H. H.; Sanford, A. H.; Senear, F. E.; Simpson, W. M., and Vonderlehr, R. A.: The Evaluation of Serodiagnostic Tests for Syphilis in the United States: Report of Results, Ven. Dis. Inform. **16**:189 (June) 1935; J. A. M. A. **104**:2083 (June 8) 1935.

2. Parran, Thomas; Hazen, H. H.; Sanford, A. H.; Senear, F. E.; Simpson, W. M., and Vonderlehr, R. A.: Efficiency of State and Local Laboratories in the Performance of Serodiagnostic Tests for Syphilis, Ven. Dis. Inform. **18**:4 (Jan.) 1937.

nic on the part of the serologists who are responsible for the performance of these tests. Perhaps the utilization of minor modifications in technic for a given test explains these differences in performance, especially in laboratories not equipped for careful investigations. The leading serologists of the country who have described reliable tests should insist that all laboratories doing routine work follow to the letter the technics which have been described for their own tests.

The relatively low ratings for specificity and sensitivity in some of the performances indicate the need for a system of periodic comparative examination of serologic tests. Such comparative examinations should be made on both a clinical and a serologic basis. The committee has recommended the establishment of such a system of comparative examinations for all state laboratories, and the necessary provisions for this work are being made by the Public Health Service. Every state laboratory in the country should avail itself of the opportunity to determine the efficiency of the performance of its tests and should set up the necessary organization to conduct a separate evaluation of serologic tests for syphilis performed by all municipal and private laboratories within its boundary. Only in this way will an efficient and practical system be established to insure the performance of reliable serodiagnostic tests in the United States at all times.

ENDEMIC GOITER AND IODINE CONTENT OF WATER, MILK AND PASTURE

In a recent bulletin of the Medical Research Council of Great Britain appears the report [1] of investigations directed toward a possible explanation of the remarkable differences in the incidence of thyroid enlargement among girls of school age in English counties. Two districts were selected for study which were known to exhibit differences in the frequency of occurrence of goiter. Certain rural areas of the counties of Somerset and Suffolk were chosen. Rural schools in which the average attendance varied from about forty to 150 children were inspected. It was considered likely that schools of such size would be found in villages in which probably only one or two farmers provided the main part of the milk supply. Such restriction was deemed necessary because of agreement that milk samples from not more than two farms in the neighborhood of any rural school could be analyzed. The survey was confined to girls, as it was assumed that the incidence in the female sex alone would provide a sufficiently reliable indication of the relative prevalence of goiter. The girls attending school aged from 6 to 14 years were marshaled in groups of ascending age and passed one by one in front of the observer, who, from a general inspection of the neck, decided whether the thyroid gland was visibly enlarged. Attempt was made to classify the thyroid into the four categories recognized by Stocks, namely: (0) impalpable thyroids, (1) thyroids palpable but no visible enlargement on inspection, (2) thyroids that showed visible enlargement but not sufficient to produce gross deformity in shape of neck, and (3) thyroids sufficiently large to be termed "goiter" beyond question. In all cases an effort was made by gentle palpation and a pair of graduated calipers to obtain an approximate measure of the greatest transverse breadth of the gland. After inspection was completed in each school an attempt was made to obtain the names and addresses of the one, two or three farmers in the neighborhood who supplied the milk to the village or district or to the children in the school.

For the whole series of 120 schools surveyed in the Somerset district, the percentage of girls with large thyroids averaged 35.7. From 6 to 8 it was found in 25 per cent, from 9 to 11 in 37 per cent, and from 12 to 14 in 46.8 per cent.

In the smaller number of schools analyzed in Suffolk the average incidence of enlarged thyroid gland among girls from 6 to 14 was only 3.7 per cent. The percentages varied, however, from 1.4 in girls from 6 to 8 to 6.9 in girls from 12 to 14 years of age. After these preliminary observations, villages were selected from which samples of the various materials were to be collected. The aim was to choose those villages in the respective districts which had a high or low incidence of thyroid enlargement combined with the greatest restriction of local sources of food and water supply. The iodine in the water, milk and pasture grass was analyzed according to Harvey's method and the tests were carried out in duplicate. The only significant difference in iodine content of these supplies between the two districts chosen lay in the iodine content of the water. The average iodine content of the water in Somerset was thus 2.9 micrograms per liter and in Suffolk 8.2 micrograms per liter when a few grossly discordant results were excluded. Even when the latter were included the difference was striking, the averages then being respectively 6.0 and 10.6 micrograms per liter. The analysis of the milk and pasture samples led to results that were identical for the two districts within the limits of error of the method. The daily iodine requirements of a child is believed to lie between 25 and 50 micrograms.

When considered in relation to the analytic results contained in the present report, it is difficult to conclude with confidence either that the environmental deficiency of iodine in Somerset is so intense as to be solely responsible for the high incidence of goiter or that the striking difference between the incidence of goiter in Somerset and in Suffolk can be referred exclusively to the difference in the iodine content of the respective waters. Although doubtless true that insufficient intake of iodine is at least partly responsible for the high inci-

1. Committee upon Iodine Deficiency and Thyroid Disease: The Relationship of the Iodine Content of Water, Milk and Pasture to the Occurrence of Endemic Goiter in Two Districts of England, Medical Research Council Special Report Series 217, H. M. Stationery Office, 1936.

dence of goiter in Somerset, it is difficult to escape the conclusion that some other factor or factors must be involved. The relationship between environmental iodine deficiency and the intensity of incidence of goiter is not a perfectly simple one. It is therefore clear that further work on the amount and mode of combination of iodine in soils in relation to the iodine content of herbage grown on them is necessary before a decision can be reached. The possible rôle of variation in the availability of soil iodine is a complicating factor which adds materially to the complexity of the analytic methods necessary.

Current Comment

MERCURIAL DIURETICS

Quantitative clinical comparisons of the diuretic action of various mercurials are rare. Sollmann and Schreiber [1] studied in a routine manner the excretion of mercury in clinical treatment and recorded the urinary volume. Data were thus accumulated that seem to furnish good material for a comparative study of diuretic potency. The different preparations were given by intravenous or intramuscular injections. They were classified into four groups: the organic compounds, including mercurosal, merbaphen and salyrgan; the inorganic ionizable compounds, including mercuric bromide, mercury bichloride in oil and mercuric oxycyanide; the inorganic colloidal compounds, consisting of metallic mercury and mercuric sulfide; and the unclassified compounds flumerin and mercuric salicylate in oil suspension. The overwhelming mass of individual data required simplification and grouping. The figures were presented, therefore, as means, the hourly excretion in successive periods sufficing as a convenient starting point. The charts constructed from these means revealed at first glance the striking directional similarity in practically all the curves between the urinary volume, the excretion of mercury and the concentration of mercury for all the different compounds and for intravenous and intramuscular injections. With a few minor exceptions, the quantitative peak was reached within one or two hours of the time of injection, followed by descent as a parabolic curve with fairly comparable speeds. The chief differences were in the height of the peaks, and for the curve of urinary volume this had a moderate range of from two to five times the normal level. The organic compounds caused somewhat greater diuresis in therapeutic doses, but with regard to the mercury content and especially the amount of mercury excreted the organic compounds were surpassed both by ionizable inorganic and by colloidal compounds. Furthermore, the organic compounds gave somewhat more prolonged periods of diuresis and excretion of mercury than the inorganic compounds injected both by vein and by muscle. The colloidal compounds caused the shortest period of diuresis when injected by vein and the longest period of excretion of mercury when injected intramuscularly. They caused the longest period of diuresis and the shortest period of excretion of mercury. In general, the differences between the compounds of each group were minor and do not suggest a significant generalization.

1. Sollmann, Torald, and Schreiber, Nora E.: Comparative Diuretic Response to Clinical Injections of Various Mercurials, Arch. Int. Med. 58: 1067 (Dec.) 1936.

THE SURGICAL EQUIPMENT INDUSTRY IN JAPAN

Before the World War the manufacture of surgical instruments and equipment in Japan was a small industry. During the World War the value of such manufactures increased more than 100 per cent. The present trend of the industry is toward further expansion. According to the U. S. Department of Commerce, practically all the surgical instruments and equipment that are used in Japan are now made there with the exception of artificial eyes (which are still imported from Germany) and a few other less important items. Furthermore, much of the surgical equipment imported from the United States and Germany is imported primarily for duplication purposes. A characteristic of the Japanese industry is that the surgical instruments and equipment is largely manufactured in homes and small workshops, which use family labor or at most only a little hired help. Ten of these households, for instance, may make one type of scalpel, another ten may make another type of scalpel, and still another ten may make glass hypodermic syringes, and so on. The United States Department of Commerce has no official information regarding the wages paid in this industry, but it is possible that skilled workmen may average 3 yen (about 90 cents) a day and unskilled helpers 1.50 yen a day. The number of clinical thermometers made by plants employing more than five workers in Japan in 1934 was 1,884,875. The number of clinical thermometers inspected by the government and approved for domestic sale during 1935 was 1,750,000, while the number of thermometers manufactured and approved for export was 300,000. Surgical instruments exported from Japan during 1935 were valued at more than 2,203,000 yen (about $630,000), and about 20 per cent of this valuation was exported to North America. In fact, North America imported more Japanese surgical instruments than any other world market, except Asia. The United States in particular has advanced to the position of being one of the leading markets for Japanese surgical instruments and allied products. The manufacture of microscopes in Japan has also made great strides. Japanese microscopes are overtaking the German microscopes in perfection, but the Japanese instruments are still behind in the matter of the finest quality of lenses. The production of laboratory microscopes in Japan varies between 100 and 150 units a month. The importation of Japanese surgical supplies into the United States became decidedly impressive in 1934, and further gains were made in 1935. The export of Japanese surgical products to the United States was started and stimulated in most instances by American buyers who went to Japan and placed orders. The present trend is for the Japanese manufacturers to take over the export trade direct. The Japanese government has taken a keen interest in this industry and is said to be seriously concerned in preventing the production of inferior goods, especially for export.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARIZONA

Bills Introduced.—S. 101 proposes to establish a state department of health, to consist of the state board of health and the state commissioner of public health. The state board of health is to consist of five members, three of whom must be members of the Arizona State Medical Association. The board of health is to appoint the commissioner of health, who is to be the executive officer of the department. The board is to adopt policies, rules and regulations for the government of the state department of health. The state department is to maintain basic divisions in epidemiology, vital statistics, sanitary engineering, laboratories for the diagnosis and control of diseases, maternal and child hygiene, and such other divisions as may be necessary to promote the public health. The bill also proposes a set-up for county and district departments of health. S. 131 proposes to regulate the practice of midwifery and to prohibit such practice except by physicians or persons licensed by the state board of health. An applicant for a license to practice midwifery must be not less than 21 years of age, be able to read and write, to show constantly evidence of habits in cleanliness and to possess a diploma from a school for midwives recognized by the state superintendent of public health or to have attended, under the instruction of a duly licensed physician, not fewer than twenty mothers and new-born infants. A licensed midwife may practice midwifery in cases of normal delivery but in cases in which delivery has not been accomplished in twelve hours she must summon a physician. A midwife is to be forbidden to make vaginal examinations, to use instruments of any kind to aid delivery, to assist labor by any artificial, forcible or mechanical means, or to administer, advise, prescribe or employ dangerous or poisonous drugs.

ARKANSAS

Bills Introduced.—S. 270 proposes to authorize the sexual sterilization of habitual criminals. A habitual criminal is defined as a person who has been two or more times convicted to final judgment for the commission of a felony. S. 277 proposes to repeal the laws regulating the possession and distribution of narcotic drugs and to enact what appears to be the uniform narcotic drug act. H. 383 proposes to create for a period of twenty-five years a board to be known as the "Medical Investigation Commission," to consist of seven members appointed by the governor, each member to be a licensed physician. It is to be the duty of the board to investigate the credentials of all physicians whose licenses to practice in Arkansas have been issued since January 1, 1915.

CALIFORNIA

Bills Introduced.—Assembly Constitutional Amendment No. 35 proposes to amend those provisions of the constitution relating to the practice of chiropractic, among other things, so as to define "chiropractic to be the art and science of locating and adjusting by hand to restore to normal any abnormal anatomic relation for the purpose of removing interference with the transmission of nerve force and also include all natural, drugless, mechanical, hygienic and sanitary measures incident to the care of the body when administered previous to or subsequent to an adjustment." A. 2116 proposes that wherever it shall be relevant to the prosecution or defense of an action, the trial court shall order any party to the action and the child of any such party to submit to one or more blood grouping tests, the results of which can be received in evidence only where definite exclusion is established. A. 2160 proposes that in any county in which a county hospital has been established, any expectant mother who is unable to pay for her necessary care must be admitted and the cost of her maintenance and care is to be paid by the county of her residence. A. 2249, to amend the workmen's compensation act, proposes that "any employee dissatisfied for whatever reason with the medical, surgical or hospital treatment provided by the employer, shall have the right to obtain medical, surgical or hospital treatment of his own choice, at the expense of the employer." A. 2313 proposes to direct the department of institutions to provide and maintain adequate hospitals and hospital facilities for the care and treatment of inebriates. A. 2569 proposes to enact a law relating to gonorrhea and syphilis. The bill proposes that every person in California over 18 years of age must submit annually to an examination to ascertain his or her freedom from gonorrhea or syphilis. If such examination reveals the presence of a venereal disease it is to be a misdemeanor for the person to refuse or to neglect to undergo necessary treatment. All persons in the state over 18 must be in the possession of a card to be known as a "G-S card," which must be renewed annually. The bill also proposes that every person marrying in the state must be in the possession of a certificate obtained within three days preceding the marriage indicating that there is no danger that such person can communicate a venereal disease to the other party to the marriage or to possible offspring. A. 2589 proposes to create a state board of eugenics, to consist of the director of the state department of institutions, the director of the state department of public health, and the director of the state department of social welfare. This board is to pass on applications for eugenic sterilization made by the superintendent or managing director of any state institution with respect to certain socially inadequate inmates in his custody or care. A. 2731, to amend the chiropractic initiative act, proposes, among other things (1) to define chiropractic as "the science and art of location and removal of any nerve interference or subluxations and their effects," and (2) to provide that a license to practice chiropractic shall authorize the holder to practice chiropractic as just defined and, in addition, "to diagnose and treat disease, deformities or other physical or mental conditions of human beings with the aid of heat, light, water, color, electricity, oils, massage and diet."

COLORADO

New Division of Tuberculosis.—The Colorado State Board of Health has created a division of tuberculosis control and appointed Dr. Alfred R. Masten, Denver, as director. One phase of a special program of tuberculosis control has already been instituted, that of supplying physicians of the state with information on the recent diagnostic and therapeutic developments in the field of tuberculosis, the necessity of complete morbidity reports, and the importance of sputum examinations in suspected cases of tuberculosis.

Bills Introduced.—H. 529 proposes to make citizenship a prerequisite to the right to obtain licenses to practice medicine and surgery, chiropody, optometry, chiropractic or any of the healing arts. H. 544 and S. 382 propose to require all applicants for licenses to practice any form of the healing art, as a condition precedent to their right to examination and licensure by their respective professional boards, to pass examinations in anatomy, physiology, chemistry, bacteriology and pathology, to be given by a board of examiners in the basic sciences. Members of the board must be full time paid professors or associate or assistant professors, teaching the subject in which they are to examine, in any university or college in the state accredited by the North Central Association of Colleges and Secondary Schools. No member may be engaged in the practice of the healing art or any branch thereof.

CONNECTICUT

Bills Introduced.—S. 909 proposes to levy an annual tax on doctors of medicine, dentists, opticians, optometrists, oculists, and chiropodists equal to $5 for each thousand dollars of gross income. H. 1041 proposes to create seven designated men as a body politic and incorporated by the name of The College of Natureopathic Physicians. The object of the corporation is to be instruction in the principles, practice and theory of natureopathy. The corporation is to have the right to establish and maintain hospitals, infirmaries and clinics. H. 1447 proposes to prohibit the retail sale of barbital or any hypnotic or somnifacient drug except on the written prescription of a licensed physician, dentist or veterinarian. The term "other hypnotic or somnifacient drug" is to include trional, sulfonal, tetronal, paraldehyde, chloral or chloral hydrate and chlorbutanol. S. 1111 and H. 1444, to amend the medical practice act, proposes that "the use of the roentgen or x-ray or of radium in any manner for the treatment of any person shall be deemed to constitute the practice of medicine and surgery." H. 1442, to amend the chiropractic practice act, proposes that a licensed chiropractor "may practice chiropractic and prescribe hygienic and sanitary measures, but shall not prescribe for or administer to any person any medicine or drug included in materia medica or perform any surgery or practice obstetrics or osteopathy." H. 1449, to amend the chiropractic practice act, proposes (1) to increase the annual renewal fee charged chiropractors to $5 and (2) to make the annual renewal of a chiropractor's license contingent on the presentation of satis-

factory evidence that the licentiate in the preceding year attended "at least one of the two-day educational programs as conducted by the Connecticut Chiropractic Association, Inc., the subjects of such programs being under the supervision of the state board of chiropractic examiners." S. 1114 proposes to limit the retail sale and distribution of barbital, trional, sulfonal, tetronal, paraldehyde and chloral or chloral hydrate or chlorbutanol to sale or distribution on the prescription of a licensed physician, dentist or veterinarian. H. 426 proposes that no hospital which receives appropriations from the general assembly shall require any nurse to work more than eight hours a day. S. 1113 and H. 1440, to amend the medical practice act, propose to permit the licensing of teachers in legally incorporated and reputable medical colleges even though they are not citizens of the United States nor have filed written declaration of their intention of becoming citizens. S. 1115 and H. 1445, to amend the medical practice act, propose to eliminate the $2 fee now charged in connection with the annual registration of practitioners of medicine, osteopathy, midwifery, chiropractic, naturopathy, chiropody and nursing.

DISTRICT OF COLUMBIA

Personal.—Dr. Arthur C. Christie, clinical professor of radiology, Georgetown University School of Medicine, has been made an honorary member of the German Society of Roentgenologists.——Oliver L. Fassig, Ph.D., retired meteorologist of the U. S. Weather Bureau, who had recently finished a book on the climate of Puerto Rico, died December 6 from the effects of injuries received in an automobile accident November 20.——Mr. Watson Davis, director of Science Service, received a fellowship in the American Institute of the City of New York at a meeting February 4.

Medical Bills in Congress.—*Bills Introduced:* S. 1506, introduced by Senator Glass, Virginia, proposes to provide for the issuance of a license to practice chiropractic in the District of Columbia to Russell V. Pemberton. H. R. 4806, introduced by Representative Norton, New Jersey, proposes to require each physician, midwife, or other person in attendance on any case of childbirth to administer immediately in the eyes of the baby a 1 per cent solution of silver nitrate or other preparation suitable in the opinion of the health officer for use as a prophylactic against inflammation of the eyes of the new-born baby. Persons treating human ailments by prayer or spiritual means as an exercise or enjoyment of religious freedom are to be exempt from this requirement. H. R. 4850, introduced by Representative Dirksen, Illinois, proposes to amend the optometry practice act of the District of Columbia so as to permit the operation of an optometric department in a mercantile establishment by any individual, firm, partnership or corporation if the department is under the supervision, direction and management of a regularly licensed and registered optometrist. H. R. 4876, introduced by Representative Lea, California, proposes to provide for the issuance of a license to practice the healing art in the District of Columbia to Dr. Frederick W. Didier. H. R. 4982, introduced by Representative Robertson, Virginia, proposes to provide for the issuance of a license to practice the healing art in the District of Columbia to Dr. William Justin Olds.

GEORGIA

The Block Memorial Lecture.—Dr. Henry W. F. Woltman, professor of neurology, University of Minnesota Graduate School of Medicine, Rochester-Minneapolis, delivered the E. Bates Block Memorial Lecture in Atlanta, January 28. His subject was "Postoperative Neurologic Complications." The lecture is delivered under the auspices of the Fulton County Medical Society.

Bills Introduced.—H. 287 proposes to forbid the retail sale and distribution of any article, device, drug or medicinal preparation primarily manufactured for, or which may be used for the prevention of venereal diseases and infections, except by licensed physicians in their practice and by registered pharmacists. H. 299 proposes to prohibit the retail sale or distribution of barbituric acid, amytal, allonal, luminal, veronal, or sodium amytal, except on the written prescription of a licensed physician, dentist, or veterinarian.

The Fischer Awards.—The Fulton County Medical Society announces the names of the winners of the annual L. C. Fischer Awards for 1936. Dr. Leila Alice Daughtry-Denmark received the prize for the paper demonstrating the most original work for her work on "Studies in Whooping Cough Diagnosis and Immunization." Drs. Amey Chappell and Frank Lee Bivings won the prize for the best written paper. Their subject was "Anemia and Pregnancy: A Three Year Study on Negro Women." It was also announced that these awards, $100 each, which were established by Dr. Luther C. Fischer, Atlanta, will be permanent.

IDAHO

Bills Introduced.—H. 192 proposes to repeal the laws regulating the possession and distribution of narcotic drugs and to enact what appears to be the uniform narcotic drug act. H. 213 proposes to authorize the establishment, construction and maintenance by the state of a hospital for the care of and treatment of persons suffering from tuberculosis, provided that a grant of 45 per cent of the cost of constructing and equiping the hospital is made by the United States government.

ILLINOIS

Bills Introduced.—H. 114 and H. 142 propose, as a condition precedent to the issuance of licenses to marry, that both parties to the proposed marriage present a physician's certificate that they are "free from venereal diseases as nearly as can be determined by a thorough examination and by application of the recognized clinical laboratory tests of scientific search." H. 187 proposes to authorize any area of contiguous territory lying wholly within one county, but entirely outside the corporate limits of any city, to be incorporated as a tuberculosis sanatorium district. The affairs of such district shall be managed by a board of three directors, appointed by the chairman of the board of supervisors of the county in which the district is situated. The directors are to have power to establish and maintain a tuberculosis sanatorium, and branches, dispensaries, and other auxiliary institutions connected with the sanatorium, for the use of the inhabitants of the district in the treatment and care of persons afflicted with tuberculosis. H. 121, to amend the state uniform narcotic drug act, proposes (1) so to define "narcotic drugs" as to include "amytal, luminal, veronal, barbital, acid diethylbarbituric, or any of its salts, derivatives, or compounds of a [sic] foregoing substances, or any preparation or compound containing any of the foregoing substances, or its salts, derivatives or compounds, or any registered, trade marked or copyrighted preparation or compound registered in the United States patent office containing more than four grains to the avoirdupois or fluid ounces of the above substances," and (2) to provide that a prescription for phenobarbital or any preparation, mixture or compound of phenobarbital may be refilled.

INDIANA

Bill Introduced.—H. 297 proposes to create a board of chiropractic examiners and to regulate the practice of chiropractic. Chiropractic is defined "as the science of locating and correcting any interference with nerve transmission or expression." A license to practice chiropractic is not to confer on a licentiate the right to practice obstetrics, surgery, prescribe drugs, or administer anesthetics. A licentiate is to be permitted to use the designation "Dr.," "doctor," or symbols designating his "profession," provided such designation is used in such a manner as to indicate that the licentiate is a chiropractor.

IOWA

Bills Introduced.—S. 154 proposes to repeal the present laws regulating the possession and distribution of narcotic drugs and to enact a bill which is denominated as the uniform narcotic drug act. The bill, however, departs from the uniform narcotic drug act in at least one important particular. It omits the provisions of the uniform narcotic drug act intended to limit the gross quantity of the habit-forming drug a person can buy in exempt preparations within a forty-eight hour period. S. 146 proposes to authorize the formation of corporations to establish, maintain and operate nonprofit hospital service plans, whereby care may be provided by such corporations or by any hospitals, to such of the public as become subscribers to said plan, under contracts which entitle each subscriber to hospital care. S. 163 proposes to permit a taxpayer in computing his net taxable income to deduct from the gross income the amount actually expended by him during the past year for medical, hospital and surgical services.

KANSAS

Bill Introduced.—H. 308 proposes to repeal the laws regulating the possession and distribution of narcotic drugs and to enact what appears to be the uniform narcotic drug act.

Dr. Snyder Named to Board of Regents.—Dr. Howard L. Snyder, Winfield, president of the Kansas Medical Society, has been appointed by the governor a member of the board of regents of Kansas, for a term of four years. The board has under its supervision all affairs incident to state schools.

LOUISIANA

Dr. Taquino Appointed Head of Department.—Dr. George J. Taquino, professor of clinical otorhinolaryngology, Louisiana State University Medical Center, has been appointed professor and head of the department of otorhinolaryngology. A graduate of Tulane University of Louisiana School of Medicine in 1911, Dr. Taquino has been connected with the medical center since its establishment in 1931.

First Graduate Medical Assembly.—The first New Orleans Graduate Medical Assembly will be held in the Roosevelt Hotel, New Orleans, March 8-11, with Dr. Hyder F. Brewster as general chairman. The following speakers, among others, will be presented:

Dr. John A. Kolmer, Philadelphia, Immunity and Vaccination Against Infantile Paralysis.
Dr. George M. Piersol, Philadelphia, Value of Laboratory Studies in the Management of Nephritis.
Dr. Lewis J. Pollock, Chicago, Physiology of Referred Visceral Pain.
Dr. Hugh Trout, Roanoke, Va., Cancer of the Breast.
Dr. Henricus J. Stander, New York, Cardiac Disease and Pregnancy.
Dr. Clifford B. Walker, Los Angeles, Retinal Detachment and Its Relation to General Medicine and Surgery.
Dr. Robert B. Osgood, Boston, The Anatomical and Physiological Causes of Low Back Pain; Diagnosis and Treatment.
Dr. Meredith F. Campbell, New York, Urinary Infections in Children.
Dr. George Gray Ward, New York, Complications of Cancer Therapy in Gynecology.
Dr. Ralph M. Waters, Madison, Wis., Development of a Science of Anesthesia.
Dr. Abernethy Benson Cannon, New York, Treatment of Vascular Anomalies of the Skin.
Dr. Albert C. Furstenberg, Ann Arbor, Mich., Medical Treatment of Ménière's Symptom Complex.
Dr. Anthony Bassler, New York, Hepatic Insufficiencies in Relation to Bodily Disorders.
Dr. Russell L. Cecil, New York, Serum Therapy of Lobar Pneumonia With Special Reference to Some of the Newer Types.
Dr. Rolla E. Dyer, Washington, D. C., Typhus.
Dr. William W. Babcock, Philadelphia, Common Errors in Clinical Surgery.
Dr. Julius Hess, Chicago, Present Status of Serum Therapy.
Dr. Eugene P. Pendergrass, Philadelphia, Silicosis.

MAINE

Bills Introduced.—S. 276 proposes to require all applicants for licenses to practice any form of the healing art, as a condition precedent to their right to examination and licensure by their respective professional boards, to pass examinations in anatomy, physiology, chemistry, bacteriology, pathology and hygiene, to be given by a board of examiners in the basic sciences, none of whose members can be licensed to practice the healing art. H. 1113 proposes so to amend the state pure food and drug act as to include "cosmetics" within the act. The bill proposes to define cosmetics "to include all substances and preparations intended for external use in cleansing, altering the appearance, or promoting the attractiveness of the person, except that such term shall not include water or soaps represented for shaving or for cleansing purposes only." A cosmetic is to be deemed to be adulterated "if it bears any poisonous or deleterious substance or any harmful metallic salt in such quantity as may render it dangerous to the user under the conditions of use prescribed in the labeling thereof, or under such conditions of use as are customary or usual." A cosmetic is to be deemed to be misbranded if it is dangerous to health under the conditions of use prescribed in the labeling or advertising thereof, or if it fails to bear a statement of the name and address of the manufacturer, or producer, or seller, or distributor.

MARYLAND

Bills Introduced.—H. 170 proposes to create a state board of naturopathic examiners and to regulate the practice of naturopathy. The bill provides that "Naturopathy and Natureopathy shall be construed as synonymous terms and are hereby defined to mean the use and practice of Psychological, Mechanical and Material health sciences to aid in purifying, cleansing and normalizing human tissues for the preservation or restoration of health according to the fundamental principles of anatomy, physiology and applied psychology, as may be required. Naturopathic practice employs, among other agencies, Phytotherapy, Dietetics, Psychotherapy, Suggesto-therapy, Aonetherapy, Bio-Chemistry, External Applications, Electro-therapy, Mechano-therapy, mechanical and electrical appliances, hygiene, first aid, sanitation and Heliotherapy." Nothing in the act is to be construed to permit a naturopath "to practice Materia Medica or Surgery or Chiropractic." H. 190, to amend the law prohibiting the retail sale and distribution of barbital and other hypnotic and somnifacient drugs except on the prescription of a licensed physician, dentist, or veterinarian, proposes that nothing in the act shall be deemed to prohibit the administering or dispensing of barbital or other hypnotic or somnifacient drugs in good faith, by duly licensed physicians, dentists or veterinarians to bona fide patients. The bill also proposes to make any violation of the act a misdemeanor punishable by a fine of not more than $100 for each offense.

MASSACHUSETTS

Dr. Miner Awarded Medal.—Dr. Leroy M. S. Miner, professor of clinical oral surgery and dean of Harvard University Dental School, Boston, was presented with the Achievement Award Medal of the Alpha Omega dental fraternity at a recent dinner. The medal is to be awarded annually for outstanding service in the field of dentistry. Dr. Miner is president of the American Dental Association and has made several contributions to the literature on his specialty. In 1904 he received the degree of doctor of medical dentistry from Harvard and in 1907 the degree of doctor of medicine from Boston University School of Medicine, where he is at present professor of stomatology. Speakers at the dinner included William Rich, D.D.S., New York, chairman of the award committee, who made the presentation address, and Howard M. Marjerison, D.M.D., dean of Tufts College Dental School, Boston.

MICHIGAN

Reuben L. Kahn Honored.—Reuben L. Kahn, D.Sc., since 1928 director of laboratories, University Hospital, and assistant professor of bacteriology, University of Michigan Medical School, Ann Arbor, was recently presented with a gold medal by the Phi Lambda Kappa fraternity for his research work in tissue immunity. The presentation took place at the annual meeting of the fraternity in Detroit. Dr. Edward A. Stern, Detroit, received the national director's gold key for "outstanding work as chairman" of the convention.

Tularemia in Detroit.—Eleven cases of tularemia have been reported in Detroit this winter, according to *Detroit Medical News*. For the most part, the patients became ill in a few days after dressing rabbits. Seven patients were employed in meat markets, and two were housewives who purchased the dressed rabbits for food. All the patients admitted having a skin injury on the hand at the time of infection. Up to January 30 there had been no fatalities. The markets where the rabbits were secured were widely distributed. Apparently the rabbits were bought from wholesalers who received shipments from western states.

Secretaries' Conference.—The annual conference of county secretaries was held in Lansing, February 7, under the chairmanship of Dr. Louis Fernald Foster, Bay City. The speakers included Drs. Henry E. Perry, Newberry, and Henry Cook, Flint, president and president-elect, respectively, of the state medical society, and Paul R. Urmston, Bay City. The formal program was presented by the following:

Dr. Perry, What the 1937 Legislature Holds for the Private Practitioner of Medicine.
Dr. Grover C. Penberthy, Detroit, Scientific Aspects of Medical Practice Today.
Dr. William W. Bauer, Chicago, Director, Bureau of Health and Public Instruction, American Medical Association, What a Good County Secretary Means to His Society.
William J. Burns, Lansing, executive secretary of the state society, Leadership by the Physician and by His County Medical Society.

MINNESOTA

Bills Introduced.—S. 611, to supplement the workmen's compensation act, proposes to make pneumoconiosis a compensable occupational disease, and to define pneumoconiosis as "a disease due to breathing air containing dust either organic or inorganic." H. 752 proposes to prohibit the retail sale and distribution of devices, appliances, or medicinal agents used in the prevention of venereal disease except by licensed pharmacies and by licensed physicians and surgeons.

MISSOURI

Bill Introduced.—S. 76 proposes to grant to hospitals, treating persons injured through the negligence of others, liens on all claims, rights of action, judgments, or compromises accruing to the injured persons by reason of their injuries.

MONTANA

Bill Introduced.—H. 59, to amend the workmen's compensation act, proposes to make occupational diseases arising out of and in the course of an employment compensable. The bill is so worded, however, as to make it probable that the only occupational diseases made compensable are silicosis and poisoning by lead, mercury, zinc, arsenic or phosphorus.

Bills Passed.—The following bills have passed the senate: S. 83 proposing to repeal the present law relating to the possession and distribution of narcotic drugs and to enact what appears to be the uniform narcotic drug act; and S. 64, proposing to permit courts, in any proceeding in which it may be material to prove nonpaternity or to prove that blood or trace of blood is not that of a certain person or persons, to require any person whose relationship or blood identity is material to the issue to submit to blood grouping tests and to make the results of such tests admissible in evidence when such tests tend to establish nonpaternity or to negative the possibility of such blood or blood trace being that of such person.

NEBRASKA

Bills Introduced.—Bill No. 159, to amend the chiropractic practice act, proposes to define chiropractic "as the science of locating and correcting interference with nerve transmission and expression between brain cells and tissue cells." Bill No. 168 proposes so to amend the state narcotic drug act as to provide that "'Narcotic drugs' means marihuana leaves and every substance neither chemically nor physically distinguishable from them." Bill No. 195, to amend the workmen's compensation act, provides that if the medical treatment to be rendered an injured employee at the employer's expense exceeds $125, the authority of the compensation court for such additional service must first be obtained. The bill further provides that that court may authorize expenditure for medical and hospital services and medicines for the purpose of restoring the injured worker to health up to $2,000.

NEVADA

Bill Introduced.—A. 104 proposes to create a board of physiotherapy examiners and to regulate the practice of physiotherapy. The board is to consist of three "medical doctors" appointed by the governor. Physiotherapy is defined as "the use of physical remedies in treatment of disease or disability as taught in schools, colleges and institutions of physiotherapy." An applicant for such a license must be of good moral character and be a graduate of a school, college or institution teaching physiotherapy and giving a course of at least three years of eight months each in anatomy, physiology, pathology, sanitation and hygiene, chemistry, gynecology and obstetrics, symptomatology, bacteriology, diagnosis, laxatology and massage, phlebotomy, antiseptic and aseptic and the theory and practice of physiotherapy.

NEW HAMPSHIRE

Bill Passed.—S. 34 has passed the senate proposing that an action for malpractice must be brought within two years after the cause of action accrues and not afterward.

NEW JERSEY

Bill Introduced.—S. 139 proposes to appropriate $2,500 to the department of health to enable it to care for, maintain or isolate indigents who are carriers of the causative agents of typhoid fever, paratyphoid fever or other diseases.

NEW MEXICO

Bill Introduced.—H. 127 proposes to create a board of chiropody examiners and to regulate the practice of chiropody. The bill defines chiropody as "the diagnosis, electrical, medical and surgical treatment of all ailments of the foot and leg, other than the amputation of the foot, leg or toes."

District Health Officers' Conference.—A conference of district health officers of the state was held in Santa Fe, January 21-23. Subjects discussed included nursing supervisors, antepartum and child health clinics, midwifery, sanitation, slaughterhouse and meat transportation regulation, spray residues and administrative problems. A resolution was adopted thanking the press of the state for space given to news and feature articles on public health and another requesting the Bureau of the Census to furnish franked envelops for the forwarding of birth and death certificates to health departments by subregistrars.

NEW YORK

Five Hundred Cases of Scarlet Fever.—The town of Owego, Tioga County, has passed an ordinance requiring pasteurization of all milk sold there. The legislative action came as a result of a recent outbreak of about 500 cases of scarlet fever traced to raw milk. Investigation revealed that a dairy from which it was suspected that the epidemic started had bought a cow a few days before the outbreak began. Immediately prior to that time the cow had been on a farm where three cases of scarlet fever had occurred. One of these was in a boy who had milked the cow. Sale of milk was stopped and the number of cases rapidly declined.

Bills Introduced.—S. 594 and A. 928 propose to enact a "consumer's protection act" to regulate the traffic in foods, drugs, cosmetics or health devices and to prevent the manufacture and sale of such articles if they are adulterated or misrepresented." S. 615, to amend the law requiring the licensing of laboratories and other places in which live pathogenic germs are handled or cultivated, proposes to require such licensure from all places "where live pathogenic micro-organisms or viruses other than vaccine virus are handled or cultivated." The bill also proposes to prohibit all persons, other than licensed practitioners of medicine, dentistry, or veterinary medicine or persons acting under the direct supervision of the licensed practitioners noted, to possess or cultivate live pathogenic micro-organisms or viruses other than vaccine viruses unless such persons have satisfied the state commissioner of health that such micro-organisms or viruses in their possession will not become a menace to the public health and unless they hold a permit issued to them by the state commissioner of health. The bill also proposes that all live pathogenic micro-organisms or viruses other than vaccine virus when given away or sold shall bear a label on the container showing the registration number of the distributor which has been issued by the state department of health for the handling of pathogenic micro-organisms or viruses, the name of the person obtaining the material and the destination of the pathogenic micro-organisms or viruses. A. 892 proposes a system of compulsory and voluntary health insurance, the benefits of which are to consist of cash and all forms of medical, surgical, and dental services. The compulsory insurance in the bill is to apply to all employees except (1) persons employed at other than manual labor and receiving wages in excess of $60 a week, (2) farm laborers and (3) persons employed in the personal or domestic service of an employer having less than three employees engaged in such service. These persons excluded from the compulsory insurance of the bill, however, may elect to come under the voluntary insurance offered in the bill. This bill appears to be identical with the health insurance bill prepared and distributed by the American Association for Social Security, Abraham Epstein, Secretary. S. 746 and A. 1051 authorize the establishment of three state cancer hospitals under the control of the department of health. The site of one of such hospitals is to be in the city of Buffalo and those of the other two, so far as practicable, shall be, respectively, one in the central or south central and the other in the eastern region of the state. S. 745 requires the appropriate public health official to provide medical care for the indigent sick in their homes whenever necessary. A person in need of medical care in the home is to be entitled to choose his family physician. When a person in need of medical care does not elect to choose a physician, the appropriate public welfare official shall select a physician to attend him. S. 755 proposes to establish in the department of health a division of syphilis control, apparently to supplant the existing division of social hygiene.

New York City

The City's Health in 1936.—A slight increase in the death rate of New York in 1936, 10.5 per thousand of population as compared with 10.3 in 1935, is recorded in the annual report of the health commissioner, Dr. John L. Rice. This small increase is probably not significant, the report says, because it is based on a population estimate that may be incorrect. The infant mortality was the lowest ever recorded in the city, 45.3 per thousand live births. A low rate of 2.2 deaths from diphtheria reflects the efforts put forth in the diphtheria prevention campaign begun in 1929, when the death rate was 27.4. Only thirty-seven children died of diphtheria in New York in 1936, compared with 717 in 1927. The tuberculosis death rate has declined but little in the past three years; in 1936 it rose to 56.6 from 54.4 in 1935. Pneumonia deaths increased to a rate of 89 after dropping to 87.5 in 1935. The rate is on a much lower plane, however, than the rate of a few years ago; for instance, in 1933 it was 107.3. It is believed that the reduction is the result of more effective methods of treatment. An outbreak of meningitis in which 243 deaths occurred in 1935 continued in 1936 with 218 deaths; in 1934 there were only seventy-three deaths. Only thirty-eight cases of poliomyelitis were reported during 1936, in contrast to 2,054 the previous year. There were fewer deaths from measles, whooping cough and scarlet fever, but these diseases remain serious menaces, Dr. Rice pointed out. Appendicitis deaths, which distinctly decreased in 1935, rose to 14.3 per hundred thousand of population in 1936. Chronic diseases of later life were responsible for about 50

per cent of all deaths. Diabetes, cancer and diseases of the heart, kidneys and arteries and cerebral hemorrhage all showed considerable increases. New York's automobile death rate was 12.6; there has been a steady decline since 1929, when the rate was 19.7. The rate from other accidents was 44 per hundred thousand. Suicides, which reached a high point of 1,595 deaths, a rate of 22.5 in 1932, dropped to 1,087, a rate of 14.8. The birth rate in 1936 was 13.4, having declined to that point from 19.6 in 1927.

NORTH DAKOTA

Bills Introduced.—H. 193 proposes that in all cases in which any public board is required by law to provide the assistance of a physician to indigent persons, such assistance shall be furnished by a medical doctor, osteopath or a chiropractor as requested by the indigent person. H. 288 proposes to authorize counties to levy a tax not exceeding 6 mills on every taxable dollar of property within the county for the purpose of providing a fund to pay for medical, surgical and hospital care to be rendered all residents of the county. Apparently residents will be permitted to choose physicians, chiropractors and osteopaths of their own choice and to determine the hospital in which they desire hospitalization. The county in turn will pay practitioners and hospitals for care rendered to residents according to a schedule of fees set out in the bill. H. 291 prohibits the sale and distribution of adulterated and misbranded cosmetics. The bill defines cosmetics as "all substances and preparations intended for cleaning or altering the appearance of or promoting the attractiveness of the person except that such term shall not include soaps represented for cleansing purposes only." H. 355, to amend the medical practice act, proposes that "the giving of treatment by baths, massage, therapeutic light rays, natural sun rays or the teaching or the cure of disease by the use of exercise, diet, manner of living or religious rights" shall not be deemed to be the practice of medicine.

OHIO

Bills Introduced.—S. 132 proposes to establish an independent board of osteopathic examination and registration to consist of five osteopaths, to examine and license applicants to practice osteopathy and surgery "in accordance with the principles as taught in recognized colleges of osteopathy and surgery." No osteopath holding a license to practice osteopathy at the time of the passage of the bill is to be permitted to practice major surgery, which is defined to mean the performance of those surgical operations attended by mortality by the use of the knife or other surgical instruments, until he shall have passed an examination in surgery to be given by the board, but he may practice minor and orthopedic surgery. Applicants for licenses to practice osteopathy and surgery must have a high school education, have attended a recognized college or university two years or more receiving credits for sixty or more semester hours and have a diploma from a reputable school of osteopathy in good standing. S. 204 proposes to authorize municipal hospitals to enter into contracts with insurance companies, service associations or companies, employers of three or more employees, fraternal organizations and other persons or groups of persons, to provide specified hospital care to persons insured, or subscribers for hospital service, employees, members or persons covered by such contracts. H. 210, to amend the law providing that the state insurance laws shall not be construed to apply to hospitals furnishing care by virtue of any contract made with residents of the county in which the hospital is located, proposes to extend the exemption to such contracts made by hospitals "with any resident of this state or with any person employed in this state." H. 172 proposes to create an independent board of chiropractic examiners to consist of three chiropractors, appointed by the governor from a list of names submitted by the Ohio state chiropractic society, and to regulate the practice of chiropractic. The bill defines chiropractic as "the art and science of locating, the procedure preparatory to adjusting, and the adjusting by hand of the subluxations of the articulations of the human spinal column, which is deemed to be the twenty-four movable vertebrae, including the sacrum and coccyx and adjacent tissues, for the purpose of removing any interference with nerve transmission; but it shall not include major surgery, nor the administration or prescription of any drug or medicine included in materia medica." The bill further proposes that "nothing herein contained shall be construed as limiting a licensee in the use of any non-therapeutic procedure generally used by any healing profession either in making a proper analysis and diagnosis, or having such made by any accepted public agency or laboratory."

OKLAHOMA

Syphilis Control Committee.—The president of the Oklahoma State Medical Association, Dr. George R. Osborn, Tulsa, has appointed the following committee to assist in the syphilis control program now being sponsored by the U. S. Public Health Service: Drs. David V. Hudson, Tulsa, chairman; Shade D. Neely, Muskogee, and Robert H. Akin, Oklahoma City.

OREGON

Alumni Meeting.—Dr. Karl A. Menninger, Topeka, Kan., will be the guest speaker at the twenty-fifth annual meeting of the Alumni Association of the University of Oregon Medical School in Portland, March 8-10. This is the fiftieth anniversity of the medical school. Details may be obtained from Dr. Thomas D. Robertson, St. Vincent's Hospital, Portland.

Bills Introduced.—S. 279 proposes to amend the law so as to require, as a condition precedent to the issue of a marriage license, the presentation of a physician's certificate, showing that both parties to the proposed marriage are free from contagious or infectious venereal diseases, epilepsy, feeblemindedness, insanity, drug addiction, and chronic alcoholism. The law now requires a certificate from the groom alone showing that he is free from contagious or infectious venereal disease. S. 301 proposes that "in all actions for damages for personal injuries resulting from the use of x-ray, radium, violet ray, artificial heat, permanent wave machines, and from all other electrical and mechanical devices and apparatus, in the treatment of persons, and which are under the exclusive control of the person administering such treatment, proof of injury shall constitute prima facie evidence of negligence." H. 281 proposes to authorize corporations, contracting to furnish medicine, medical or surgical treatment, nursing, hospital service, ambulance service or dental service, to transact a hospital association business. The bill also proposes to authorize physicians and surgeons to contract, contingent on sickness or injury, to perform their own professional services, but not to permit them to agree to furnish in addition to their own services, hospital care, nursing or dental service unless they comply with the hospital association business law. H. 283 proposes to authorize employers to contract with their employees to provide them with medical and surgical care and treatment, nursing and hospital service contingent on sickness or injury and to retain a portion of their wages for that purpose. The bill contemplates that the employer in turn shall enter into agreements with any association or corporation to supply the necessary medical, surgical and hospital care and attention to their employees. The bill proposes to make it unlawful for any employer to retain, directly or indirectly, any part of the money collected for his own use or benefit.

PENNSYLVANIA

Personal.—Dr. Herbert C. Woolley, Washington, D. C., has been appointed superintendent of Pennhurst State School for mental defectives, to succeed Dr. Walter R. Krauss, resigned. ——Dr. Wilbur E. Turner, Montgomery, was honored by a testimonial dinner given by the Montgomery Rotary Club, January 15, in recognition of his election to the presidency of the Lycoming County Medical Society.

Philadelphia

Physicians' Aid Association.—Dr. John M. Fisher was reelected president of the Aid Association of the Philadelphia County Medical Society at its recent annual meeting, and Dr. Henry P. Brown Jr., secretary-treasurer. In his annual report Dr. Fisher said that the funds of the association had been taxed far beyond their capacity to do more than mitigate the distress of its dependents. Receipts during the year diminished and the number applying for aid increased, Dr. Fisher said. The committee on benevolence distributed $5,078.11 to eleven annuitants receiving regular amounts and twenty-five beneficiaries receiving varying amounts for emergencies.

Joint Surgical Meeting.—The Boston Surgical Society met jointly with the Philadelphia Academy of Surgery, February 15. The morning was devoted to a group of case reports presented at University Hospital. In the afternoon the following program was presented at the auditorium of the College of Physicians of Philadelphia:

Dr. Isidor S. Ravdin, Nutritional Edema.
Dr. Arthur Bruce Gill, Dupuytren's Contracture.
Dr. Lewis K. Ferguson, Treatment of Pilonidal Cysts by Delayed Excision and Primary Suture in Ambulatory Parts.
Dr. George Wagoner, Haverford, Chronic Sciatic Pain Due to Adhesions About the Nerve Trunk and the Results of Their Removal by Operation.
Dr. Thomas A. Shallow, Esophageal Diverticula.
Dr. Joseph C. Birdsall, The Relationship of Hydronephrosis to Nephroptosis.

SOUTH DAKOTA

Bills Introduced.—S. 139, to amend the workmen's compensation act, proposes to permit the injured worker to select his own physician or hospital to treat and care for him at the employer's expense. The bill also proposes to limit the employer's liability for medical services to $100 and to limit his liability for hospital services to $100. H. 75 proposes to make it the duty of the governing agencies of the several public and parochial schools in the state to enforce the regulations of the state board of health requiring all teachers to obtain each year a certificate from a licensed physician showing the absence of active tuberculosis before they will be allowed to teach. S. 205 proposes to create a board of healing arts to consist of the president of the South Dakota university, the state superintendent of public instruction and the president of the state college. It is to be the duty of this board "to prescribe the educational qualifications and studies which shall have been pursued by any applicant to any state board for examination pertaining to the healing art and to enact regulations and rules for examining applicants before said board." No applicant for a license to practice any form of the healing art is to be allowed to appear before any "professional" examining and licensing board without first having obtained a certificate from the board of healing arts that he has pursued the studies designated by the board and has passed examinations given by the board.

TENNESSEE

Bills Introduced.—S. 367 and H. 630 propose to require applicants for licenses to practice any form of the healing art, as a condition precedent to their right to examination and licensure by their respective professional boards, to pass examinations in anatomy, physiology, chemistry, bacteriology and pathology, to be given by the department of education. S. 368 and H. 631, to amend the medical practice act, propose (1) to make it possible for all members of the board of medical examiners to be appointed without regard to their school of practice; (2) to provide that members of the board be appointed from a list of names submitted by the Tennessee State Medical Association; (3) to provide that the term of office of members of the board be six years, instead of four; (4) to eliminate the requirement that members of the board representing each separate school of practice shall have the right to examine all applicants of that school in the branches peculiar to the teachings of that school and to substitute therefor a provision that each applicant coming before the board for examination must present evidence of graduation from a medical college which requires, as a prerequisite to admission thereto, two years of collegiate work, including physics, chemistry, and biology; (5) to increase to $50 the fee for the issuance of a license by reciprocity; (6) to increase the fee for a license issued after examination to $25; (7) to provide a stated procedure to be followed in revocation or suspension proceedings; (8) to add the following to the list of acts the commission of which shall be deemed unprofessional conduct and grounds for the revocation of a license: advertising statements that might be calculated to deceive or mislead the public; employing or making use of advertising, solicitors, radio announcers, entertainers or lecturers; guaranteeing or warranting operations; giving testimonials concerning the supposed virtue of secret therapeutic agents; promising radical cures or boasting of, prescribing or employing secret methods of treatment or the exhibition of certificates of skill or success in the treatment of diseases; the conviction of any violation of the Harrison Antinarcotic Act; and the conviction of any felony; and (9) to make it unlawful for any one not a licensed physician to use x-ray or electric coagulation for examination or for the diagnosis and treatment of diseases, provided that this shall not be construed to apply to x-ray technicians working under the direction of a licensed physician or dentist.

TEXAS

Bills Introduced.—S. 229 and S. 230 propose to prohibit the manufacture, or sale or other distribution of any article of food to which has been added formaldehyde, boric acid or borates, benzoic acid or benzoate, sulfurous acids or sulfites, salicylic acid or salicylates, abrastol, beta naphthol, fluorine compounds, dulcin, glucin, cocaine, sulfuric acid or other mineral acid except diluted phosphoric acid, any preparation of lead or copper or other ingredients injurious to health. Nothing in the bill, however, is to be construed as prohibiting the sale of foods or drinks preserved with one tenth of one per cent of benzoate of soda, or the equivalent benzoic acid, when a statement of such fact is plainly indicated on the label. The bill also proposes to authorize the state board of health to promulgate regulations limiting the quantity of oxides of sulfur and other bleaching, clarifying or refining agents that may be used for bleaching, clarifying or refining fruits, vegetables and other foods. S. 249 proposes to prohibit the sale of adulterated or misbranded foods, drugs, cosmetics or devices. H. 474 proposes that no hospital shall be exempt from taxation unless it allows and makes "available the equal, constant and complete use of its property and facilities to each and every reputable physician and/or surgeon who has been qualified and licensed to practice as a physician and/or surgeon by the State Board of Medical Examiners."

UTAH

Bills Introduced.—House Concurrent Memorial No. 5 proposes to memorialize the legislatures of the several states of the United States to enact laws designed to eradicate venereal disease and particularly to require a medical certificate of freedom from venereal disease as a prerequisite to marriage. H. 161 proposes to prohibit the retail sale or distribution of any device, appliance, or medicinal agent used in the prevention of venereal disease except by licensed pharmacists, physicians or osteopaths. H. 163, to amend certain provisions of the law authorizing the department of registration to examine and license applicants for licenses to practice any form of the healing art and to revoke and suspend licenses for causes stated, proposes (1) to require the department to provide a stenographer to take down the testimony of all proceedings to revoke or suspend a certificate and to require the department to furnish a transcript of such record on the payment of a stated fee; (2) to require the committee presiding at a revocation or suspension proceeding to present to the director of the department of registration a written report of its findings and recommendations, to require a copy of that report to be served on the affected licentiate, and to require the affected licentiate to present to the department a motion in writing for a rehearing within twenty days after receipt of the committee's findings and recommendations; and (3) to vest in the district court of the county wherein the licentiate resides power to review any order of revocation or suspension, provided suit is commenced within twenty days after the registrant's receipt of notice of the order of revocation or suspension.

WASHINGTON

Bills Introduced.—S. 261 proposes that any professional or vocational group of persons required by law to pay a license fee or pass examinations shall have the right to form an association or society with quasigovernmental powers. Such an association when formed "shall take over the powers now granted to the director of licenses pertaining to examinations of new applicants, the hearing of grievances against any member, and any and all other laws which pertain to the regulation and governing of such organizations." H. 385 proposes to authorize employers to contract to supply their employees medical and surgical treatment, nursing and hospital services contingent on sickness or injury not sustained in the employment and to collect or retain a portion of their employees' wages for that purpose. H. 386 authorizes the formation of corporations to transact business as hospital associations. Such corporations are to be permitted to contract with subscribers for the furnishing of medicines, medical and surgical care and attention, nursing care, hospital care and dental service contingent on sickness or accident. H. 388 proposes to grant to physicians, nurses and hospitals treating persons injured through the fault of others, liens on any claims, rights of action, judgments or compromises accruing to the injured persons because of their injuries. S. 209, to amend the state narcotic drug act proposes (1) so to define "narcotic drugs" as to include "diludid, cannabis sativa (a species of which is marihuana) . . . barbital"; (2) to require a dispenser of narcotic drugs to preserve prescriptions for such drugs for five years; (3) to authorize the state board of health to purchase and dispense narcotic drugs at clinics in such quantities and at such intervals as it may deem necessary to narcotic addicts who are bona fide residents of the state and who in the opinion of the board of health cannot be cured of their addiction by quarantine and detention. S. 213 and H. 377 propose to enact a "state food, drugs, and cosmetics act," to prevent the manufacture, shipment and sale of adulterated or misbranded food, drugs and cosmetics.

WEST VIRGINIA

Bills Introduced.—H. 159 proposes that "no person convicted of a felony . . . and sentenced to confinement in the penitentiary . . . shall be paroled, permitted to go at large or conditionally pardoned before the expiration of the maximum term of his or her sentence until he or she has been made sexually sterile." H. 250 proposes, as a condition pre-

cedent to the issuance of licenses to marry, that both parties to a proposed marriage shall present "a certificate of health issued and certified by a registered practicing physician, dated for not more than five days prior to application of certificate of marriage, showing that the contracting parties are free from venereal diseases which have been acquired and not of an inherited nature." H. 242 proposes, as a condition precedent to the issuance of a marriage license, to require both parties to proposed marriages to submit a certificate from a licensed physician that neither party has any venereal or other infectious or communicable disease.

WISCONSIN

Bills Introduced.—S. 86 proposes to provide a penalty for any person "who shall refuse to permit any duly licensed physician or surgeon to employ the available facilities and rooms of any hospital at the usual rates of charge of such hospital for such facilities and rooms, and attend and work for his patients therein and to render therein his professional services as a physician or surgeon." S. 100 proposes that (1) if a person afflicted with tuberculosis fails to comply with the regulations of the state board of health, he may be committed to a state tuberculosis hospital or to a county tuberculosis sanatorium which can provide proper care and (2) to authorize the local health officer to quarantine any person with tuberculosis who persistently continues to violate the rules and regulations of the state board of health. S. 88 proposes to require a physician knowing or having reason to know that a person treated or visited by him has poliomyelitis to report the facts to the local health officer and to the state board of health.

WYOMING

Bill Passed.—H. 177 has passed the house, proposing to repeal present laws regulating the possession and distribution of narcotic drugs and to enact what appears to be the uniform narcotic drug act.

Bills Introduced.—H. 265 proposes to prohibit the retail sale and distribution of appliances, drugs, or medicinal preparations intended or having special utility for the prevention of venereal diseases, except by persons licensed to do so by the state board of health or by licensed physicians, chiropractors or osteopaths. H. 276, to amend that section of the medical practice act stating what persons shall be regarded as practicing medicine, proposes, in effect, that a person holding himself out to the public as being engaged in the diagnosis and treatment of diseases or injuries or deformities of human beings shall be regarded as practicing medicine only if he utilizes medicine and surgery in his therapy.

GENERAL

Physical Therapy Meeting.—A sectional meeting of the American Congress of Physical Therapy will be held in St. Louis March 9 in the auditorium of the St. Louis Medical Society. Among the speakers will be Drs. William H. Schmidt, Philadelphia, on "Evaluation of Fever Therapy After Six Years' Experience"; Miland E. Knapp, Minneapolis, "Ultraviolet Treatment of Erysipelas"; Frank H. Krusen, Rochester, Minn., "Physical Therapy in Fibrositis," and Albert F. Tyler, Omaha, "X-Ray Treatment of Acute and Chronic Infections." Mr. Howard Carter, B.S. in M.E., secretary of the Council on Physical Therapy of the American Medical Association, Chicago, will give a demonstration of "Physical Aspects of Short Wave Diathermy."

Surgical Congress at Charlotte Instead of Louisville.—The annual assembly of the Southeastern Surgical Congress will be held in Charlotte, N. C., instead of Louisville, Ky., March 8-10. The change was made because of flood conditions in Louisville. Among the speakers will be Drs. Charles Gordon Heyd, New York, President, and John H. J. Upham, Columbus, President-Elect of the American Medical Association; William Wayne Babcock, Philadelphia; Edward D. Churchill, Boston; Winchell McK. Craig, Rochester, Minn.; George W. Crile, Cleveland; Louis G. Herrmann, Cincinnati; Arthur E. Hertzler, Halstead, Kan.; Herman L. Kretschmer, Chicago; Dean D. Lewis, Baltimore; George H. Semken, New York. At a public meeting Dr. William D. Haggard, Nashville, Tenn., will deliver the first C. Jeff Miller Memorial Lecture. Dr. John Darrington, Yazoo, Miss., is president and Dr. Fred W. Rankin, Lexington, Ky., is president-elect of the congress. Further information may be obtained from the secretary, Dr. Benjamin T. Beasley, 701 Hurt Building, Atlanta, Ga.

Centennial Edition of Dispensatory.—The twenty-second edition of the U. S. Dispensatory, called the "centennial edition," has come from the press. The first edition of this encyclopedia of drugs used in the United States, Canada and Great Britain was published in 1833 under the editorship of George B. Wood, great-uncle of the present editor, Horatio C. Wood, Philadelphia. The first volume contained 1,073 pages and listed 4,800 titles; the new one has 1,894 pages and 28,000 titles. More than 300,000 copies have been sold to pharmacists all over the world in the last 100 years. The present edition was eight years in preparation. Dr. Wood is professor of pharmacology and therapeutics at the University of Pennsylvania, professor of pharmacology in the Philadelphia College of Pharmacy and Science and a member of the Committee on Revision of the U. S. Pharmacopeia. Associated with him on the editorial staff is Charles H. LaWall, Pharm.D., professor of pharmacy, Philadelphia College of Pharmacy and Science, and also a member of the revision committee. Other members of the editorial board are Heber W. Youngman, Ph.D., of the Massachusetts College of Pharmacy, Boston; Arthur Osol, Ph.D.; Ivor Griffith, Ph.M., and Louis Gershenfeld, Pharm.M., all of the Philadelphia College of Pharmacy and Science.

Medical Bills in Congress.—*Changes in Status:* H. J. Res. 229 has passed the House and Senate, proposing to authorize the President to allocate to the U. S. Public Health Service funds from appropriations available for emergency relief for health and sanitation activities in the flood stricken areas. S. 655 has been reported to the Senate, proposing to add the name of Dr. Roger P. Ames to those honored by the act recognizing the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever. *Bills Introduced:* S. 1567, introduced by Representative Sheppard, Texas, and H. R. 4415, introduced (by request) by Representative Hill, Alabama, propose, among other things, to permit the Bureau of Mines to sell to citizens of the United States or to corporations, under regulations approved by the President, any helium that is produced in plants operated by the government or under lease or contract with it for the production of helium, that is not needed for government use. H. R. 4798, introduced by Representative Maverick, Texas, proposes to provide vocational guidance, vocational training, and employment opportunities for youths between the ages of 16 and 25 years. Any young person employed under the act, if injured during the course of employment, is to receive "all necessary medical expenses." H. R. 4808, introduced by Representative Izac, California, proposes to provide pensions for former enlisted men of the Army, Navy or Marine Corps who have heretofore separated or who may hereafter separate from the service with a disability incurred or aggravated in line of duty of such a nature and extent as to disqualify for further military or naval service. H. R. 4843, introduced by Representative Hobbs, Alabama, proposes to repeal the emergency officers' retirement act. H. R. 4857, introduced by Representative Lanzetta, New York, proposes to authorize the Administrator of Veterans' Affairs to furnish domiciliary, medical and hospital care to veterans residing outside of the continental limits of the United States or its Territories, or possessions, if such veterans are citizens of the United States and are suffering from disabilities due to service in the armed forces of the United States. S. 1629, introduced by Senator Walsh, Massachusetts, proposes to regulate traffic in surgical ligatures and sutures. The bill proposes that surgical ligatures and sutures, to be salable in the District of Columbia, or in interstate and foreign commerce, must be prepared at an establishment holding an unsuspended and unrevoked license issued by the Secretary of the Treasury and that the container must be plainly marked with the proper name of the article, the name, address, and license number of the manufacturer, and the date beyond which the contents cannot be expected beyond reasonable doubt to yield their specific results.

Government Services

Physicians Wanted for the Conservation Corps

The Medford, Oregon, district of the Civilian Conservation Corps, is in need of physicians. The salary is $225 a month. Applicants must have licenses to practice. Those interested are asked to wire the District Surgeon, Medford CCC District, Medford, Ore.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 30, 1937.

The Surgical Treatment of Cardiac Ischemia

At the Royal College of Surgeons, before a large audience, Laurence F. O'Shaughnessy delivered a special lecture on his new operation of cardio-omentopexy for the treatment of cardiac ischemia. Lord Dawson, president of the Royal College of Physicians, gave an introductory address. He was the head of a small cardiovascular clinic established at Lambeth Hospital by the London County Council, at which the medical staff cooperated with Mr. O'Shaughnessy. In cases in which coronary occlusion was not immediately fatal, the problem was to secure an adequate compensatory circulation. The difficulty was not in the anastomosis but in the great vascular needs of the heart. It was known that pericardial adhesions could form an effective collateral circulation. In one case it was found at necropsy that there had been complete occlusion of each coronary artery for a considerable time; yet there was no clinical history of an attack of thrombosis. The pericardial adhesions had actually been supplying the heart. Such a compensatory circulation through the pericardium might sometimes form by itself; but, if not, surgical measures were a reasonable procedure. The prospect should be good in selected cases, provided the capillary bed was not too degenerate to profit by the new arterial supply.

Mr. O'Shaughnessy referred to previous experiments on coronary occlusion in animals which showed survival after ligation of a main trunk and to experiments on animals performed in America by Beck and Tichy and reported in 1935, in which grafts from the pericardium, omentum and chest wall were applied to the heart. His own experiments on cardiac grafting began in December 1933. He used the omentum, which was the only structure in the body with the specific property of vascularization, a fact appreciated many years ago by Rutherford Morison in the operation of omentopexy for cirrhosis of the liver. The operation of cardio-omentopexy was performed on a greyhound in which the descending branch of the left coronary artery had been ligated. The animal could chase an "electric hare" around the full course without distress. Later the animal was killed and the vascular connections between the heart and the omentum were demonstrated. Major operations on the chest were justifiable only by close collaboration between physician and surgeon. It was not sufficient for a physician to refer a case; he must be in close contact with the patient in the immediate preoperative period and he must share the conduct of the postoperative period. In cardio-omentopexy he made, under general anesthesia with oxygen under pressure and vaporized ether, an incision along the fifth intercostal space from the midline to the anterior axillary line. The fifth and sixth intercostal cartilages were divided near the sternum and the pericardium was exposed by the use of a large Sauerbruch intercostal retractor. The phrenic nerve was identified and crushed with a hemostat. The left leaf of the diaphragm appeared in the operation field and, after the insertion of two sutures, the muscle was incised. The abdomen was then exposed through the diaphragmatic incision. A suitable portion of omentum was brought into the chest. The pericardium was cautiously incised and the graft attached to the heart and edges of the pericardium by sutures of fine linen thread. For the operation oxygen under positive pressure was necessary, so that transpleural exploration of the heart might be accomplished without disturbance. Surgical shock was eliminated in the first place by skilful anesthesia and secondly by the application of work on traumatic shock done at the college by O'Shaughnessy and Slome in 1935. They showed that only two factors were concerned in shock-fluid loss at the time of the trauma and nervous impulses from the traumatized area, transmitted for some considerable time afterward. The approach in cardio-omentopexy was almost bloodless. The blocking of the phrenic nerve prevented the carrying of injurious impulses.

Mr. O'Shaughnessy briefly described five cases of angina pectoris or coronary thrombosis in which he had performed cardio-omentopexy and a sixth in which he assisted Mr. G. A. Mason. Reports would be published later. In none was there any anxiety during the operation or in the postoperative period. One patient died seven days after operation from hemorrhage from a chronic duodenal ulcer, but there was no postoperative disturbance and the blood pressure was 130. Two patients left the hospital in good condition. A fourth, aged 72, had a period of relief from angina and was able to go home but succumbed later to uremia. A fifth, who had been bedridden for eighteen months, was able to get up and walk. The sixth had left the hospital.

"A Coronary Survival Club"

In a letter to the *British Medical Journal*, Prof. Grey Turner has made an ingenious suggestion which arose out of a conversation after a dinner given at the Royal College of Surgeons. Among the specimens shown was a cat's heart to which omentum had been stitched to supply an additional circulation after ligature of the coronary artery by Mr. L. F. O'Shaughnessy. This specimen elicited great interest, especially among those present who had themselves been subjects of coronary mischief. It occurred to Professor Turner that there would be a brilliant opportunity for further research if those who had suffered from this malady, and in some respect had recovered so far as to enjoy a degree of their normal activity, would constitute themselves a "Coronary Survival Club." They might record their symptoms and send a provisional report to be cared for by the conservator at the college, at the same time arranging that on their demise the results of a necropsy should be recorded and sent to the same place. Much valuable information would thus be accumulated and might help to settle problems still unsolved. The discussion after the dinner showed that the factors concerned in coronary disease are uncertain and ill understood. A great example of the suggested procedure is furnished by the case of John Hunter, who recorded his symptoms and on whose body a necropsy was made by his brother-in-law, Everard Home.

Shortage of Radium

The National Radium Trust was established in 1929 with a capital of $1,250,000, contributed by the public to provide radium for the treatment of disease. The trust appointed a national radium commission to distribute the radium to hospitals and clinics. In the report for the year ended July 1936, just published, the commission states that in order to secure efficient radium service for the country it will be necessary for the present radium centers to extend their work, new centers will have to be formed, and further supplies of radium are required. At most of the centers there has been a tendency to replace the interstitial and intracavitary use of small quantities of radium by the application at a distance of large quantities of radium. This method has led to many of the centers pressing the commission for more radium. The report records much progress at almost all the centers and high level of initiative and zeal, which will go far toward solving the grave problem of the commission. The trend of present-day experience indicates the advantages in certain cases of cancer of combining radium and x-ray treatment. It is calculated that in this country about 40,000 persons are suffering from cancer in those accessible organs in which radium may be of value, but that only 8,000 obtain the treatment.

Sir Grafton Elliot Smith

Sir Grafton Elliot Smith, the anatomist and anthropologist, has died at the age of 65. Born at Grafton, New South Wales, of English and Welsh stock, he was educated at the University of Sydney, graduating M.B., Ch.M. in 1892. In 1900 he was appointed the first professor of anatomy at the new Cairo Medical School, established by the government. He supervised the examination of the skeletal remains of 30,000 Egyptian burials, predynasic and dynastic, and also examined mummies. He next studied the history and pathology of the ancient Egyptians and the process of mummification. The results were "The Ancient Egyptians," published in 1911, which was received with enthusiasm by many anthropologists, and "The Royal Mummies," published in 1921, which threw a new light on Egyptian history. He deduced the intrusion of a new racial element (Armenoid) into ancient Egypt.

In 1909 he was appointed professor of anatomy at Manchester University and in 1919 professor at University College, London. He introduced the cranial cast for the study of the brain of early man—a method that has been pronounced probably his greatest contribution to human paleontology. His work on human paleontology was embodied in "The Evolution of Man," published in 1924. He expounded the importance of the "Peking man," discovered by his friend the late Davidson Black.

His peculiar distinction was that he was preeminent both as a physical and as a cultural anthropologist. His studies led him to formulate the theory that all civilization orginated in Egypt, whence it spread all over the world. He took the lead in exposing the Aryan and Nordic myths. At the University College he reorganized the department of anatomy with the aid of a grant from the Rockefeller trustees. He planned it so that the study of man's evolution and physical structure should proceed side by side with the study of the development of culture. His plans were brought to fruition by the appointment in 1927 of a co-worker, W. J. Perry, as reader in cultural anthropology.

PARIS

(From Our Regular Correspondent)

Jan. 28, 1937.

Transmission of the Human Influenza Virus

At the Nov. 24, 1936, meeting of the Académie de médecine the results of experiments on the transmission of the virus of human influenza to ferrets were reported by de la Rivière and Cheve. They have confirmed the work of British and American investigators who showed that ferrets can be infected either with the rhinopharyngeal mucus of human beings suffering from influenza or from ferrets previously inoculated. The contamination follows either in an indirect manner by placing infected ferrets in cages in which there are noninfected ferrets, or directly by intranasal instillation or intrapulmonary inoculation of the nasopharyngeal secretion of influenza patients. The animals show marked symptoms of influenza, such as oculonasal catarrh, sneezing, a diphasic temperature curve, somnolence and anorexia. These symptoms recede rapidly and the animal recovers in the majority of cases. The virus can be transmitted to a series of ferrets and even to mice. The latter can be infected only following ether anesthesia and only with a virus derived from an infected ferret. Mice cannot be infected directly by the human virus. The disease in ferrets is contagious for human beings, as has been shown in England and the United States. The virus is a filtrable one, which passes through a 12 Chamberland filter as well as collodion filters. Both human beings and animals that have been infected by the ferret virus show marked immunity for a certain length of time.

Tuberculous Meningitis from Unboiled Cow's Milk

A paper which adds another link in the chain of evidence that unboiled milk from tuberculous cows can result in tuberculous meningitis in children was read by Lesne, Saenz, Salembiez and Costil at the Nov. 17, 1936, meeting of the Académie de médecine of Paris. The rôle of the bovine bacillus in the etiology of tuberculous meningitis has been studied but little in France, so that a complete review of the experience in other countries was first given. During the past four years the authors studied bacteriologically the cerebrospinal fluid in 138 cases of meningitis in the children's service of Lesne at the Trousseau hospital. None of these children had been given the BCG vaccine. In only eight cases was a negative result obtained. The clinical evolution of these eight cases showed that the meningeal syndromes were nontuberculous and curable (secondary meningeal reactions or serous benign meningitis).

The use of the Loewenstein culture medium as modified by Saenz showed that it was the best which is available at present, for detection of tubercle bacilli in the cerebrospinal fluid, because inspection of the colonies on the inoculated medium, before inoculation of rabbits is done, enables the bacteriologist to distinguish the bovine and human types of tubercle bacilli. Every specimen of the cerebrospinal fluid was inoculated on from six to eight tubes and placed in an incubator at 37 C.

Of the 130 cases thus studied, 121 showed, in the cultures, tubercle bacilli of the human and nine of the bovine type. The date of appearance of the colonies in the case of the human type varied from eleven to twenty-nine days, whereas those of the bovine type appeared later, from thirty to seventy-two days. The number of colonies of the human were far more numerous than those of the bovine type. Inoculation into rabbits of the colonies from the nine patients in whom the bovine type was found confirmed the cultural evidence that the bacilli were of this type. It is a well established fact that the guinea-pig is not susceptible to the bovine type of tubercle bacillus, whereas the rabbit is.

Seven of the nine children in whom the bovine type was found were less than 5 years of age, and eight of the nine had been given unboiled milk during most of their life. Nearly all of the nine children had been raised in country districts, not a single one having ever lived in Paris. In five of the nine cases, familial contamination could be excluded. In the other four, no information as to this point could be obtained. In the ninth case, although the father had suffered from a pulmonary tuberculosis, the child had been given only unboiled milk.

This occurrence of tuberculous meningitis of the bovine type in children who had been given only unboiled milk is in striking contrast to the 121 cases in which the human type was found in the cerebrospinal fluid. Of these 121 patients (human type), 50.61 per cent lived in Paris, 25.70 per cent in the suburbs and only 10 per cent in country districts. In almost all, interhuman contagion was found as the etiologic factor. All of these 121 children were raised on pasteurized or boiled milk.

These studies prove that unboiled milk is the source of infection in children who have tuberculous meningitis of the bovine type. It has been shown that the milk of cows with tuberculous mastitis is a common source of infection. As high as 100,000 virulent bacilli per cubic centimeter have been found in such milk. Other sources of infection of milk are found in soiling of the udders by stable dust or excreta. Gosio of Milan reported that, in a single farm, out of 107 samples of milk examined, sixteen were found to contain tubercle bacilli. Sixteen of these 107 samples were obtained from animals in which no effort had been made to cleanse the udders. On another farm, where such precautions were constantly taken, only one cow of fifty-six had infected milk.

In the discussion Martel maintained that, in spite of the progress in surveillance of cows with and without evident tuberculous lesions, some tuberculous cows are sold because there is no law in France which renders possible an obligatory

sanitary control of milk production. At the close of the meeting a committee was appointed to urge the passage of such a law.

Cure of Pulmonary Abscess by Nonoperative Treatment

At the November 10 meeting of the Académie de médecine a report of seventy-two cases of abscess of the lung was read by Bezançon, Azoulay and Bernal. All cases in which tubercle bacilli were found in the expectoration, as well as cases that were evidently secondary to a bronchiectasis, were excluded. Of the seventy-two patients, ten died, nine passed into the chronic stage of suppuration and fifty-two (72 per cent) were cured following nonoperative (medical) treatment. The degree of the fetid character of the expectoration served as a basis in making a prognosis. Ninety-three per cent of the abscesses were of this character and the authors believe that the prognosis is good even though the abscess gives rise to a fetid expectoration. The etiology of the abscess is of no aid in making a prognosis. The same is true of the clinical picture. Multiple as well as solitary foci are included in the cured cases. Even though the general condition indicates a severe degree of toxinemia, the outlook may be favorable. The results of the examination of the expectoration are of little help from a practical point of view. It was found that even in an abscess with putrid sputum, the case cannot be regarded as a more serious one than in those with nonfetid contents which are the result of ordinary pyogenic infection. In fact, at the present time the most valuable information is obtained by inspection of x-ray films. Every clinician agrees that the localization of the abscess with the aid of iodized oil is the most important diagnostic procedure. This preparation, when insufflated into the bronchi, does not infect an abscess. In the most common form of pulmonary abscess the bronchi are seen to be slightly dilated in the adjacent portions of the lung. In chronic gangrene, one can observe how the insufflation of iodized oil reveals a double process of death of tissue and a destructive sclerosis, which can take place early in the formation of the gangrenous area. In other cases a marked dilatation of the bronchi in the form of cavities arranged like a bunch of grapes is striking. The great value of insufflation with iodized oil as a diagnostic procedure from the beginning of the abscess formation was particularly emphasized, because it reveals the extent of the bronchiectases which make medical treatment almost impossible and are a disastrous complication from the surgical point of view. The roentgenographic study of a case permits one to understand and to determine in advance the variations in development of an abscess by means of the differences to be seen in the local anatomic changes. In cases of solitary circumscribed abscess formation, the evolution is usually uncomplicated, so that most of these heal under medical treatment. Cortical abscesses are the only exceptions to this rule. On the other hand, if there is pyosclerosis, i. e., much fibrous induration around the abscess, which is not frequent, spontaneous recovery is less certain, because there is a tendency for the condition to become more chronic, so that the extent of the lesions and diffusion of the tissue changes are the dominant factors in prognosis. The only cases in which early operation is indicated are those in which the abscess is a cortical one, i. e., near the pleural surface, and those with perforation into the pleural cavity. In the pyoscleroses, a lobectomy appears to be a logical procedure, but in spite of the rapid advances in pulmonary surgery, this operation must still be regarded as serious. Nearly all the patients with multiple abscess have recovered under medical treatment of various kinds, none of which seem to be specific.

In the discussion of this paper, Professor Sergent said that he had always emphasized the possibility of spontaneous recovery, but nevertheless one must always be on the lookout for cases of apparent, i. e., pseudo, cure. An abscess that is either primarily or secondarily of a putrid character and becomes chronic gives rise to a progressively extensive chronic pneumopathy, which becomes sclerotic and ulceronecrotic. It is in such an area that bronchiectases form, and the result is a bronchiectatic pulmonary abscess. If operative intervention is delayed until this stage is reached, the patient is of course a bad risk for a lobectomy. If too much reliance is not placed on spontaneous recovery by medical treatment or in various methods of drainage, the chances of cure by pneumotomy or by partial cuneiform pneumonectomy would be far more favorable than if one waits too long. Sergent differed from the opinion of Bezançon in trying medical treatment first, because he has more confidence that operation will cure a larger percentage of cases. Professor Lemierre agreed with Professor Bezançon that the appearance and the examination of the expectoration might lead to false conclusions as to the character of a pulmonary abscess. He believes, however, that there is an important difference between an abscess due to ordinary pyogenic bacteria and one due to the bacteria found in a putrid abscess. Spontaneous recovery rarely occurs in the latter group of cases. Professor Debré, based on his experience with children, agreed with the authors of the paper as to the comparative rarity of gangrenous abscesses. Those due to the ordinary pyogenic bacteria usually heal spontaneously.

Search for Tubercle Bacilli by Cultures of Feces

At the Oct. 27, 1936, meeting of the Académie de médecine Professor Bezançon and two associates, Braun and Aveline, reported the results of their trial of the culture method in the search for tubercle bacilli in the stools. Cultures of the sputum have rendered invaluable service in cases in which repeated examination by the staining method was negative. The Petragnani-Loewenstein culture method for tubercle bacilli as developed by Saenz of the Pasteur Institute requires some modifications before it can be used in examination of the stools, according to Bezançon and his associates, who investigated the stools of 231 adults and children. This number included positive and suspected cases of pulmonary tuberculosis as well as normal individuals. Cultures made from the stools of 105 normal adults and twenty-three normal children were all negative. In fifty-seven cases diagnosed clinically as pulmonary tuberculosis, positive results were obtained in all the patients. In six of these it had been impossible to find the bacilli by any other method. In certain cases there are so few bacilli to be found that only a few colonies appear on fifteen or twenty inoculated tubes. In only two cases were paratuberculosis bacilli found, the colonies being chromogenic and avirulent. Whenever the laboratory and clinical observations disagree, it is advisable to check the culture method by guinea-pig inoculation of the colonies obtained on the culture medium.

New Associate Fellows of Academy of Medicine

At one of the recent meetings of the leading medical society of France, the Académie de médecine, Prof. Ernest Malvoz of Belgium and Sir St. Clair Thomson of England were elected foreign associate fellows. The former is an eminent bacteriologist and has rendered valuable services in establishing antituberculosis centers. Dr. Thomson has made some important contributions to the literature of his special field, otorhinolaryngology.

Prof. Antoine Béclère Made Commander of Legion of Honor

The Legion of Honor was founded by Napoleon I as an order in which especially meritorious services can receive recognition by the government. The lowest rank is Chevalier, then Officer, and the highest rank is Commander. The last named title has just been bestowed on Dr. Antoine Béclère,

the internationally known radiologist, who is still active at the age of 80 years. Dr. Béclère is an ex-president of the Académie de médecine and is an emeritus attending radiologist in the public hospital service of Paris.

Annual Election of the Academy of Surgery

The leading surgical society in France, the Académie de chirurgie of Paris, has chosen as officers for 1937 Dr. Baumgartner as president and Dr. Chevassu as vice president. The London surgeons G. E. Gask and G. G. Turner were elected associate foreign members.

BERLIN

(From Our Regular Correspondent)

Jan. 16, 1937.

The German National Health Bureau

The National Health Bureau, which recently celebrated its sixtieth anniversary, has undergone reorganization within recent years. Ten years ago, at the time of its fifty-year jubilee, the bureau was divided into four sections: the human-medical, the veterinary medical, the food and chemical and the biologic-bacteriologic-zoological. At that time the staff comprised, in addition to the president and the four sectional directors, sixty-one scientific officials and employees, among whom were twenty-five physicians, eighteen chemists and three pharmacists. As Dr. Schütt, the director of a section, states in "Der öffentliche Gesundheitsdienst": The basic acceptance of the National Socialist weltanschauung necessitated a tremendous expansion of public health activities and this called for drastic changes in the organization of the bureau.

In place of the former four sections there are now twelve sections. Section A, the human-medical section, has remained essentially the same and is now as before the foundation of the bureau. It is a clearing house for statistical data on a diversity of subject matter: nationwide campaigns against disease, antituberculosis, anticancer, antivenereal; vaccination legislation, reforms in the curriculums of medical schools, new regulation of roentgen and radium irradiation, affairs of organizations such as the associations of hospitals, of midwives, of watering places and of health stations; problems of maternity, infant and child welfare, dental supervision in the schools and so on. Special circumstances have necessitated the creation of a separate bureau on abuses in the field of medicine.

Section B is devoted to all aspects of veterinary medicine throughout the reich: antiepizootic campaigns and so on.

Section C, food and chemistry, deals with problems presented by trade in foodstuffs and so on. This section makes exhaustive studies of the bread problem. The National Commission for Research on Wine is also a part of section C.

Section D deals with sanitary problems of water supplies, drainage and housing. It no longer exists as a single section, for its functions have been assumed by the State Institute for Hygiene of the Water, Soil and Air, of which the president of the National Health Bureau is also a member.

Section E is the industrial hygiene section. It deals with all questions that relate to labor and the protection of the workers' health. By its merger with the former general hygiene section, new duties have accrued to section E. These have to do with various problems of sanitation and hygiene presented by municipalities, dwellings, rural settlement projects and also the problems of traffic safety and hygiene.

Section F deals with problems of pharmacology and physiology. It has undergone expansion through the creation of a special bureau for homeopathy. For the rest it functions in close collaboration with section G, the section on pharmaceutic substances and opium. The latter section deals with all the problems of pharmacy. The revision of the statutes governing pharmacy, which has been in progress for the past decade, has been among the duties of this section. A special subdivision is the "opium center"; one of the newly established card catalogues of this department vouchsafes a surveillance of all the narcotics in the German reich.

Section H, which formerly concerned itself with experimental research in bacteriology and biology, has been merged with the Robert Koch Institute for Infectious Diseases.

Section I was formed from a biochemical subdivision of section H for the performance of certain special functions.

Section K is synonymous with the before mentioned Robert Koch Institute, which now confines its activities to the human-medical-bacteriologic sphere. The former section on veterinary medicine has been annexed to section B.

Section L, on eugenics and racial supervision, is a complete innovation, an outgrowth of the new official German ideology. It was set up in March 1935. Its principal objective is the organization of a genetic-biologic survey of the entire German population. The section itself serves as headquarters for this project. Already it has assembled more than a million catalogue cards. These are uniform for the entire reich and are at present undergoing scientific and statistical evaluation. Moreover, it is contemplated to introduce uniform criminologic-biologic investigations of all penal institutions and to initiate a survey of the psychopathic hospitals. Next will follow a study of the inmates of orphanages.

Section M, the section for genetic research, is likewise a new creation. Its aim is to study problems of public health policy while making ample use of scientific genetic experimentation with animals and plants. The attempt is being made to arrive through such experimentation at conclusions applicable to human biology. Various laboratories are given over to special fields of research, such as Drosophila genetics, genetic population research, fish genetics, protozoology, and experimental constitutional research.

Section N is concerned with the physiology of nutrition. It is also a new unit organized for the study of national food problems. This section maintains a laboratory for research on the physiology of nutrition. The German Society for Research on Nutrition and the National Cooperative Association for Nutrition collaborate closely with the work of section N (THE JOURNAL, May 5, 1934, p. 1510). The ultimate objective of this section is a domestic production of foodstuffs sufficient to sustain the entire nation.

The staff of the National Health Bureau comprises at present about 500 persons, 200 of whom are university trained. The personnel of the Robert Koch Institute for Infectious Diseases and of the National Institute for Hygiene of the Water, Soil and Air are included in these figures. The bureau is under the ministry of the interior but because of its manifold functions it is also affiliated with other ministries. Among the current publications of the bureau are "Reichs-Gesundheitsblatt," "Arbeiten aus dem Reichsgesundheitsamt" and more recently "Schriftenreihe des Reichsgesundheitsamt" and the journal *Die Ernährung*.

The Increase in Occupational Diseases

The increase of around 22 per cent in the number of full time employees, which took place in 1934, was paralleled by an increase of around 7 per cent in the number of reported cases of occupational disease. But the number of such cases in which compensation was granted for the first time in that year showed a decrease of 17 per cent compared with 1933. In 1935 the number of full time workers underwent a further increase of 10 per cent: from 9,450,000 in 1934 to 10,430,000 in 1935. The number of reported cases of occupational disease increased 12.2 per cent in 1935 compared with the preceding year; there were 7,664 cases in 1934 and, according to tentative computation, 8,601 in 1935. Newly compensated cases increased by a mere 0.7 per cent: 1,043 cases in 1934, 1,125 cases in 1935.

Of the occupational diseases, severe pneumoconiosis was most prevalent among miners and industrial workers in earth and stone. Lead poisoning was most frequent in the metallurgic industries. Cases of infection that could be classed as occupational disease cases were more common among workers in the public health and welfare services and in maritime navigation. The quarry workers' organization reported a decline in the number of cases of occupational disease: in 1934 there were 182 cases; in 1935, 148 cases; in the same period the number of newly compensated cases sank from seventy-three to forty-three and the number of fatalities from thirty to twelve. The campaign against pneumoconiosis receives substantial support in the transactions published by the Antidust Center, which was founded in 1935 as an adjunct of the occupational organization. Originally, provision was made for group examinations of various gangs of endangered workers with a portable x-ray apparatus but this procedure was never actually followed and instead the specialist examined the workers in their home towns, using the local apparatus.

In the metal industry, 2,127 cases of occupational disease were reported during 1935 compared with 2,147 in 1934; there were 104 newly compensated cases in 1935 compared with 124 in 1934, and thirteen fatalities in 1935 compared with twenty-four in 1934. Lead poisoning, carbon monoxide poisoning, skin diseases, pneumoconiosis and so on appeared chiefly to be traceable to ground basic slag.

The printing industry reported 223 cases of occupational disease in 1935 (249 in 1934). Attempts to devise a photoengraving technic that will in no way injure the worker's health have not been successful.

The professional association for public health and welfare service reported an increase in the number of cases from 556 in 1934 to 703 in 1935; of the latter, fifty-nine cases were incorrectly recorded. In 1935 there were ninety-eight newly compensated cases (1934, ninety), of which eighteen were fatal (1934, nine). This increase in illness was due to a prevalence of mild cases of infectious disease among institutional workers. There was an increase in the number of intoxications from x-rays and other types of radiant energy and from arsenic. On the increase also were cases of diphtheria, scarlet fever, influenza, sore throat, syphilis, pulmonary tuberculosis, erysipelas, whooping cough, measles, furunculosis, gonorrhea and brucellosis. Fewer cases were reported of poisonings from lead, mercury, carbon disulfide and carbon monoxide, chronic recurrent skin diseases, typhoid, lupus, varicella, granulosis and paratyphoid.

VIENNA

(From Our Regular Correspondent)

Jan. 2, 1937.

The Sixth International Congress of Urology

The series of medical conventions held at Vienna during September was brought to a close by the Congress of the Internationale Gesellschaft für Urologie. This international society is a small organization, its membership being limited to the leading urologists of various countries. Only papers on well defined and significant topics were submitted at the Vienna convention. The Spanish delegates were unable to attend because of the civil war at home; their discussions were read by Dr. Hryntschak.

The first topic, carcinoma of the prostate, was discussed by Drs. Hryntschak and Bauer. The most important finding from their extensive research is the possibility of an inflammatory etiology of prostatic cancer. Further, it has been demonstrated that in a certain number of cases of prostatic hypertrophy a carcinomatous alteration is present but without clinical grounds for suspicion. Of 310 cases in which prostatectomy was performed, 3 per cent showed the presence of a carcinomatous alteration without on the whole there being clinically any suggestive manifestation; in a good 7 per cent the histologic picture exhibited modifications that were considered as precancerous.

Dr. C. A. R. Nitch of London discussed the conservative treatment of carcinoma of the prostate. This includes radiotherapy, surgical therapy and combinations of the two methods. Roentgen therapy produces good results at first; the end results are disappointing whether the Holfelder method or the Lewitt intensive irradiation is used. The results are more favorable with radium if the prostate is approached from all sides. The author applies 70 mg. of radium; that is, 14 mg. to the posterolateral surfaces, 50 mg. from the side of the bladder and 5 mg. from the side of the urethra. He estimates the number of cases cured at 28 per cent. The conservative surgical treatment (suprapubic drainage, electrosection) can be introduced only in carefully selected cases; the last named method should in future, in conjunction with radium, become the method of choice.

A discussion by Oreja of San Sebastian had to be read by a proxy, owing to circumstances already mentioned. Oreja emphasizes that an exact and timely diagnosis is of fundamental prognostic importance. The common adenomatous hypertrophy is frequently related to incipient malignancy; thus the presence of this condition is a valuable diagnostic indication of early stage carcinoma. Careful rectal palpation is mandatory in men over the age of 50 who complain of urinary disturbances.

In surgical treatment both the perineal and the suprapubic approaches are used. A majority of surgeons prefer the perineal approach, although a suprapubic prostatectomy is no more difficult. Optimal results are obtained if the prostate is only in a suggestive condition or if the carcinoma is first discovered in the course of the intervention. If, however, an unequivocal diagnosis has been established, radical intervention is not promising. Transurethral resection has had of late more advocates than suprapubic cystostomy and the results of the former appear to be more favorable. With increased experimentation it should shortly become the method of choice.

A discussion of blood stream infection of the kidney was submitted by Cabot of Rochester, Minn. In a group of forty-six patients presenting acute inflammatory processes in the nose, mouth and ear and in which the urine was apparently normal, the presence of bacteria could be detected microscopically in thirty-two cases and culturally in eighteen cases. It was thus demonstrated that in such cases the pyogenic cocci are soon present in the urine; they usually disappear, however, after a short time. The lesions are found in the medullary substance and the cortex of the kidney. Pyelography is an important diagnostic aid. In peracute cases treatment is purely surgical. In cases presenting chills, high fever and leukocytosis but without essential urinary changes, nonsurgical treatment is often advantageous. For a third category, the subacute cases with less turbulent courses, conservative treatment is indicated. But if a perinephric abscess has developed, surgical intervention must be undertaken. The fourth group is composed of borderline cases, which frequently represent the sequels of disturbances in the upper respiratory tract. The symptoms are slight but the cocci are always present in the urine. In such cases operation has scarcely ever to be considered. Varied types of operation are indicated somewhat as follows: nephrectomy in peracute cases, nephrectomy in cases presenting disseminated foci of infection without massive formation of abscesses; if massive abscesses are present, decapsulation and drainage should be performed. In many cases the perinephric abscess is laid bare and the extent of the disease is estimated on the basis of the process disclosed.

Professor Illyes of Budapest and Dr. Necker of Vienna discussed suppuration in the renal parenchyma. The Hungarian

scholar divided the infections into urogenic or ascending, hematogenic or descending, and lymphogenic. In each type bacteria may enter the blood stream of the kidney and obstruct the vascular loops of the glomeruli. In urogenic infections the lower urinary passages have been for the most part already infected, and from this location the infection travels to the kidneys. The lymphogenic infection is only rarely demonstrable with certainty. It may develop in cases of appendicitis or suppurative adnexitis. The colon bacillus appears as the most frequent agent in renal abscess. Streptococci and staphylococci follow in the order named. Differentiated clinically are (1) suppurative nephritis, (2) suppurative pyelonephritis and (3) pyonephrosis or contracted kidney. The greater number of cases fall into the second group.

Illyes makes the following recommendations with regard to therapeutic measures: In the cases of group 1, nephrectomy for patients who are in poor general health and who have chills, pain and fever; otherwise decapsulation. In renal carbuncles, either nephrectomy or, if the carbuncle is more favorably situated, incision and drainage (open treatment). For the cases of group 2 in which the retention of urine plays the most important part (renal calculi, calculi in the ureters, prostatic hypertrophy, stricture, compressions) the conservation method is preferable, as the author has been persuaded after observation of 455 cases. Pyelitis gravidarum requires operation only infrequently (sixteen of 207 cases). For the cases of group 3, which represents the terminal form of the renal suppuration, diagnosis is not difficult and the therapy should, wherever possible, consist of radical operation, although the latter is frequently difficult and heroic. Only in the most urgent cases is nephrotomy to be performed.

Necker's discussion dealt with other aspects of the same topic: On the basis of animal experimentation and after observation of a large number of cases, Necker differentiates a primary and a secondary parenchymatous suppuration. Primary suppuration denotes a circumscribed disease process of the cortex of the kidney, produced by pyogenic cocci. There are present diffuse miliary abscesses and infarcts as well as large intrarenal abscesses. The cortex is always involved.

The secondary parenchymatous suppuration is usually a colon bacillus infection. Its development depends on dynamic factors in the excretory urinary passages. Predominant symptoms are fever and pain due to pressure in the renal region. The pathologic pictures are seldom typical, usually obscure. Diagnosis is in many instances difficult, since the temperature becomes normal from time to time and the changes in the urine are not always unequivocal. Of greater significance is the continuous observation of the hemogram and of the blood sedimentation rate. If the condition is detected early enough, a surgical intervention (incision, excochleation) will produce favorable results. Secondary parenchymatous suppuration frequently causes such damage to a kidney that the maintenance of the organ is rendered impossible, although in certain cases favorable results may still be obtained by removal of obstructions from the urinary tract. Prognosis is, however, at best none too good, as not infrequently both kidneys are affected.

Professor Rubritius of Vienna next discussed the physiology of the excretory urinary passages. The basis of his experimentation was the behavior of the muscular hollow organs. He pointed out the close relationship between the function of the particular zones of these muscular organs. One section acts as a detrusor, another as a sphincter; the entire hollow organ is, so to speak, split up into functional segments that are coupled together with one another. For example, while the bladder is contracted, the peristalsis of the upper urinary passage ceases. In addition, however, the mucous membranes of the urinary tract are not without function, as they are the seat of resorption. The excretory urinary passages constitute a closed system, the individual parts of which work together hand in hand. Therein are to be found both muscular activity and resorption; the latter supplies important data for future investigations.

A final discussion was provided by Professor Snapper of Amsterdam on the pathologic physiology of urinary secretion. The urine is a functional result of the various, wholly disparate physiologic processes in the glomeruli and the tubules. In the glomeruli an ultrafiltrate is separated from the blood plasma and this exhibits all the crystalloids of the plasma in the same concentration as in the blood. The colloids (proteins) do not pass through the glomerulus membrane. In the canaliculi a resorption of water and of various substances takes place, however. Experimentation has demonstrated that in one minute's time the astonishingly large amount of from 110 to 170 cc. of glomerular filtrate may be secreted and that from 97 per cent to 99 per cent of this water is reabsorbed in the canaliculi. The level of the blood pressure is of essential importance for the glomerular function, and this means not only the pressure in the aorta but also the independent self-sustaining alterations of blood pressure in the glomerulus. For the protection of the renal parenchyma during the secretion of the acids, the formation of ammonia is of greater significance. For clinical diagnosis the different functional tests are of the greatest value; in particular the urea-clearance test, the phenolsulfonphthalein test, the creatinine test and the dilution-concentration test. The nonsecretory renal functions should also be considered: important syntheses (hippuric acid), oxidations (acetone bodies) and the formation of ammonia.

In addition to these principal discussions, a hundred other important communications were scheduled to be submitted; so the Austrian delegates, as hosts, waived the reading of their own papers. More than eighty foreign urologists were accordingly given time in which to present their contributions. In the open discussion, however, all the delegates participated in appropriate measure, each speaker being allowed the floor for only five or ten minutes.

There were also the customary social and official receptions and entertainments, as well as the tours of inspection of scientific institutions.

Marriages

BENNETTE EDWARD STEPHENSON JR., Weldon, N. C., to Miss Alma Hazel McGee of Willow Springs in Raleigh, Dec. 26, 1936.

HENRY CLAY ROBERTSON JR., Charleston, S. C., to Miss Caroline Elizabeth Lebby of Washington, D. C., January 2.

GEORGE AUDNEY REYNOLDS, Bowling Green, Va., to Miss Pearle Maupin Young of Fredericksburg, Dec. 31, 1936.

BENJAMIN WHEELER JENKINS, Philadelphia, to Miss Mary Agnes Wills of Jenkintown, Pa., Dec. 30, 1936.

WALLACE BROWN BRADFORD, Charlotte, N. C., to Miss Margaret Godfrey of Ambler, Pa., January 8.

LLOYD L. THOMPSON, West Point, Neb., to Miss Betty Lou Tapscott in Greenfield, Ind., Dec. 29, 1936.

JOHN THOMAS ASSEY JR., Georgetown, S. C., to Miss Helen Louise Maguire of Charleston, January 5.

KUTCHEN T. KLEIN, Meridian, Miss., to Miss Thelma Weatherford of Decatur, Dec. 30, 1936.

GUSTAVUS A. RUSH JR., Meridian, Miss., to Miss Helen Virginia Arline of Atlanta, Ga., January 11.

ARTHUR DAVID BUSSEY, Two Rivers, Wis., to Miss Henrietta S. Heller of Milwaukee, Nov. 14, 1936.

PAUL K. CANDLER, Emory, Va., to Miss Leah Estelle Haynie of Reedville, Dec. 22, 1936.

DANIEL CATLIN to Miss Doris Havemeyer, both of New York, February 9.

Deaths

Elias Hudson Bartley, Brooklyn; Long Island College Hospital, Brooklyn, 1879; member of the House of Delegates of the American Medical Association, 1909-1910; member of the Medical Society of the State of New York; past president of the Medical Society of the County of Kings and the Associated Physicians of Long Island; fellow and formerly vice president of the American College of Physicians; since 1917 emeritus professor of chemistry and pediatrics at his alma mater, dean and professor of pediatrics, 1915-1917, professor of chemistry, toxicology and pediatrics, 1901-1915, professor of chemistry and toxicology, 1886-1901, and instructor of chemistry, 1880-1886; dean and professor of organic chemistry at the Brooklyn College of Pharmacy, 1892-1902; chief chemist for the health department of Brooklyn, 1882-1888; member of the Kings County Board of Pharmacy, 1892-1898; consulting pediatrician to the Long Island College Hospital, Methodist Hospital and the Kingston Avenue Hospital, Brooklyn, where he was also president of the medical board for many years, and the Southside Hospital, Bayshore; had been chief of the department of pediatrics at the Brownsville and East New York Hospital; member of the U. S. Pharmacopeia conventions in 1890, 1900, 1910 and 1930; author of "Textbook on Medical and Pharmaceutical Chemistry," which went through seven editions from 1885 to 1909, and of "Manual of Clinical Chemistry," through three editions; aged 87; died, January 12, of senility.

Luther Fiske Warren ● Brooklyn; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1909; professor of medicine, Long Island College of Medicine; past president of the Medical Society of the County of Kings; member of the New York State Board of Medical Examiners; regent and fellow of the American College of Physicians; member of the Association for the Study of Internal Secretions, Congress of Internal Medicine, American Association for the Advancement of Science, National Tuberculosis Association and various others; physician in chief to the Long Island College and St. John's hospitals; medical director of the Brooklyn Home for Consumptives, consulting physician to the Methodist Episcopal and Lutheran hospitals, Brooklyn, Southside Hospital, Bayshore and the Brunswick General Hospital, Amityville; member of the board of trustees of the Polytechnic Institute and the Packer Collegiate Institute; chairman of the public health committee and member of the board of directors of the Brooklyn Chamber of Commerce; formerly president of the Brooklyn Health Council; aged 51; died, January 18, of carcinomatosis, secondary to carcinoma of the breast.

Marshall Morgan Cloud ● Captain, U. S. Army, retired, Los Angeles; Kansas City (Mo.) Medical College, 1892; assistant superintendent of the Kansas State Hospital, Topeka, 1893-1895; was appointed a first lieutenant and assistant surgeon in the medical corps of the U. S. Army in 1896, veteran of the Spanish-American War and was retired for disability in line of duty with rank of captain in 1901; on active duty during the World War; fellow of the American College of Surgeons; clinical professor of ophthalmology at the University of Southern California School of Medicine, 1910-1913, and professor of military medicine, 1920-1923; ophthalmologist to the National Soldiers Home, Sawtelle, Calif., 1910-1913, and the Santa Fe Railway, 1910-1921; was examining surgeon for the U. S. Pension Bureau; on the staffs of the Hollywood and Los Angeles General hospitals; author of "Guide to the Chemical Analysis of Water and the Sanitary Analysis of Water," 1905; aged 68; died, Dec. 3, 1936, of amebic dysentery.

Robert Battey Greenough ● Boston; Harvard University Medical School, Boston, 1896; formerly assistant professor of surgery at his alma mater and the graduate school; past president of the Massachusetts Medical Society; fellow and past president of the American College of Surgeons; member of the American Surgical Association, Society of Clinical Surgery, New England Surgical Society, New England Roentgen Ray Society and the American Radium Society; president and member of the board of directors of the American Society for the Control of Cancer; served during the World War; was a medical inspector in the U. S. Naval Reserve Force; consulting surgeon to the Massachusetts General and the Collis P. Huntington Memorial hospitals; for several years chairman of the Harvard Cancer Commission; aged 65; died, February 16, of arteriosclerosis with coronary occlusion.

Collins Hickey Johnston ● Grand Rapids, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1883; member of the House of Delegates of the American Medical Association in 1908; fellow of the American College of Physicians; member of the American Clinical and Climatological Association; for many years chairman of the Kent County Medical Milk Commission; member of the medical advisory board during the World War; formerly member of the board of education and board of health; was surgeon for the Grand Trunk and New York Central Railroad; member of the visiting staff of the Blodgett Memorial and Butterworth hospitals; honorary chief of staff of the D. A. Blodgett Home for Children; aged 77; died, Dec. 29, 1936, of coronary thrombosis and arteriosclerosis.

Francis Dennis Donoghue ● Boston; Harvard University Medical School, Boston, 1894; for many years instructor in surgery at the Tufts College Medical School; surgeon to the Boston Dispensary and consulting surgeon to the Jordan Hospital, Plymouth, Mass.; in 1912 was appointed medical adviser to the Massachusetts Industrial Accident Board; in 1925 was appointed by the President to represent the United States at the International Conference on Accidents at Amsterdam, was a delegate to all succeeding congresses and was permanent vice president from the United States and a member of the council; aged 65; died, January 4, in the Peter Bent Brigham Hospital, of secondary anemia and complications.

Dorian Feigenbaum ● New York; Medizinische Fakultät der Universität Wien, Austria, 1914; member of the American Psychoanalytic Association, American Psychiatric Association and the American Psychopathological Association; formerly instructor in neurology at the Columbia University College of Physicians and Surgeons; was medical director of the Hospital for Mental Diseases of Jerusalem; consultant in criminal lunacy to the government of Palestine, 1921-1923; had been an assistant in neurology at the Vanderbilt Clinic, 1931; founder and editor-in-chief of the *Psychoanalytic Quarterly;* aged 49; died, January 2, of pneumonia.

Frank Caulkins Bunn ● Orange, N. J.; New York Homeopathic Medical College and Hospital, 1889; fellow of the American College of Surgeons; member of the medical advisory board during the World War; a founder, senior surgeon and member of the board of trustees of the Homeopathic Hospital of Essex County, East Orange; consulting surgeon to St. Mary's Hospital, Passaic, Fitkin Memorial Hospital, Neptune, Essex County Hospital for Contagious Diseases, Belleville, Montclair (N. J.) Community Hospital and the Presbyterian Hospital, Newark; aged 68; died, January 9, of coronary disease.

Fred Gershom Fielding ● Glens Falls, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889; member of the American Academy of Ophthalmology and Oto-Laryngology; past president of the Warren County Medical Society; formerly member and president of the board of education; member of the board of managers and vice president of the Westmount Sanatorium; a member of the consultant staff and at one time president of the attending staff of the Glens Falls Hospital; aged 70; died, January 9, of chronic myocarditis.

Joseph Edward Fuld, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1893; member of the Medical Society of the State of New York; was appointed assistant visiting surgeon at the City Hospital in 1912, in 1925 was elected visiting surgeon, and since 1935 consulting surgeon; formerly on the staff of the Gouverneur Hospital, visiting surgeon of the division of surgery and gynecology at the Correction Hospitals; aged 64; died, January 3.

Urban Grant Iles, Orlando, Fla.; Rush Medical College, Chicago, 1888; in 1920 was appointed medical examiner by the Bureau of War Risk Insurance, and after serving on several boards of appeals was assigned to the Veterans Administration Hospital, Augusta, Ga.; aged 72; died, Dec. 21, 1936, in the Orange General Hospital of coronary sclerosis, pernicious anemia and arteriosclerosis.

Jean Albini Aubry, Rochester, N. Y.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1928; member of the Medical Society of the State of New York; instructor in obstetrics and gynecology at the University of Rochester School of Medicine and Dentistry; on the staff of the Strong Memorial Hospital; aged 35; died, Dec. 20, 1936, of subacute bacterial endocarditis.

Charles De Lancey Alton ● Hartford, Conn.; Bellevue Hospital Medical College, New York, 1875; member of the American Clinical and Climatological Association; past president of the Hartford County Medical Society; medical referee for the Connecticut Mutual Life Insurance Company; aged 91; died, January 8, of arteriosclerosis and auricular fibrillation.

George Albion Dickson, Ogden, Utah; Bellevue Hospital Medical College, New York, 1891; member of the Utah State Medical Association; formerly city councilman and member

of the school board; for many years attending physician at the Utah State Industrial School; aged 69; died, Dec. 28, 1936, of cerebral hemorrhage.

George W. Moore, Ashland, Ky.; University of Louisville Medical Department, 1889; member of the Kentucky State Medical Association; formerly county health officer; director and member of the staff of the King's Daughters' Hospital; aged 78; died, Dec. 24, 1936, of myocarditis and chronic bronchitis.

Jesse J. Adams, Glasgow, Ky.; Hospital College of Medicine, Louisville, 1890; member of the Kentucky State Medical Association; formerly secretary of the Hart County Medical Society; at one time member of the Hart County Board of Health; aged 70; died, January 6, of heart disease.

Nathaniel Palmquist, Smithland, Iowa; Barnes Medical College, St. Louis, 1909; served during the World War; visiting member on the staff of the Methodist Hospital, Sioux City; aged 58; died, Dec. 26, 1936, in the Veterans Administration Facility, Des Moines, of coronary occlusion.

James Laurence McCarthy, Butte, Mont.; John A. Creighton Medical College, Omaha, 1900; member of the Medical Association of Montana; county physician and county health officer; on the staff of St. James Hospital; aged 59; died, Dec. 20, 1936, of coronary occlusion.

Frank Jay Murphy, Sioux City, Iowa; Rush Medical College, Chicago, 1887; member of the Iowa State Medical Society; served during the Spanish-American and World wars; aged 71; died, Dec. 23, 1936, of carcinoma of the testicle with metastasis to the retroperitoneal glands.

Andrew Joseph Noome ● Wheeling, W. Va.; Jefferson Medical College of Philadelphia, 1900; fellow of the American College of Surgeons; on the staff of the Wheeling Hospital; aged 67; died, Dec. 4, 1936, of carcinoma of the colon with metastasis to the liver.

Eugene B. Pribble, Salem, Ill.; Medical College of Ohio, Cincinnati, 1906; member of the Illinois State Medical Society; formerly member of the city council; aged 59; died, Dec. 30, 1936, of pneumonia, fracture of the hip as the result of a fall, and hypertension.

William F. X. Dierkes ● Westfield, Mass.; Kansas City (Mo.) University of Physicians and Surgeons, 1920; veteran of the Spanish-American War; on the staff of the Noble Hospital; aged 64; died, Dec. 5, 1936, in Northampton, of cerebral hemorrhage.

Charles Ross Johnson ● Cambridge, Ohio; Starling Medical College, Columbus, 1898; president of the Guernsey County Medical Society; served during the World War; on the staff of the Swan Hospital; aged 61; died, Dec. 25, 1936, of lung abscess.

Jesse Lee Russell ● Adairville, Ky.; University of Louisville Medical Department, 1911; also a graduate in pharmacy; past president of the Logan County Medical Society; served during the World War; aged 51; died, Dec. 23, 1936, of heart disease.

George Moses Felton, Schenectady, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1910; member of the Medical Society of the State of New York; aged 52; died suddenly, Dec. 31, 1936, in Fort Lauderdale, Fla.

Septimio Caruso, Boston; Tufts College Medical School, Boston, 1918; member of the Massachusetts Medical Society; aged 44; died, Dec. 24, 1936, in St. Elizabeth's Hospital, of ruptured diverticulitis of the sigmoid and general peritonitis.

William M. Lively ● Dallas, Texas; Arkansas Industrial University Medical Department, Little Rock, 1892; formerly professor of obstetrics at Baylor University College of Medicine; aged 72; died, Dec. 27, 1936, of coronary occlusion.

James L. Seibert ● Bellefonte, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1883; county medical director; on the staff of the Center County Hospital; aged 85; died, Dec. 29, 1936, of coronary artery occlusion.

Joseph Wade Thompson, Independence, Miss.; University of Tennessee College of Medicine, Memphis, 1915; member of the Mississippi State Medical Association; aged 61; died, Dec. 25, 1936, in Sanatorium of pulmonary tuberculosis.

Frederic D. H. MacMaster, Syracuse, N. Y.; Hahnemann Medical College and Hospital, Chicago, 1897; veteran of the Spanish-American War; aged 68; died, Dec. 24, 1936, of arteriosclerotic heart disease and bronchopneumonia.

Gustave Adolph Thielke ● Wausau, Wis.; Milwaukee Medical College, 1903; served during the World War; aged 61; died, Dec. 20, 1936, in the Wisconsin General Hospital, Madison, of hypertensive heart disease and bronchopneumonia.

Charles Calvin Addoms, Hondo, Calif.; Ensworth Medical College, St. Joseph, Mo., 1891; formerly a practitioner in St. Louis; aged 84; died, Dec. 16, 1936, of arteriosclerosis, hypertension and chronic myocarditis.

Louis Philippe Adelard Dorion, Haverhill, Mass.; School of Medicine and Surgery of Montreal, Que., Canada, 1888; also a druggist; aged 72; died, Dec. 23, 1936, in Montreal, of carcinoma of the descending colon.

J. Chauncey Huntsinger, Muskegon Heights, Mich.; Hahnemann Medical College and Hospital, Chicago, 1889; aged 79; died, Dec. 29, 1936, of acute pericarditis with effusion and chronic valvular heart disease.

John Mettauer Williams, Roanoke, Va.; University of Pennsylvania Department of Medicine, Philadelphia, 1874; member of Medical Society of Virginia; aged 85; died, Dec. 24, 1936, of chronic myocarditis.

Elza Carl Porter ● Chicago; University of Illinois College of Medicine, Chicago, 1927; served during the World War; on the staff of the Lake View Hospital; aged 38; died, Dec. 25, 1936, of lobar pneumonia.

Guy Boyd Maxwell ● Canton, Ohio; Chicago College of Medicine and Surgery, 1911; served during the World War; aged 50; died, Dec. 22, 1936, in the Mercy Hospital, Brownsville, Texas, of nephritis.

Elwin Otis Church, Menno, S. D.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; aged 64; died suddenly, Dec. 3, 1936, of heart disease.

Charles William Igou, Colorado Springs, Colo.; Northwestern University Medical School, Chicago, 1896; aged 66; died, Dec. 23, 1936, of amebic dysentery and coronary thrombosis.

Ora Waldo Drake, Grand Rapids, Ohio; Toledo Medical College, 1906; formerly member of the board of education; aged 58; died, January 1, of arteriosclerosis and complications.

Robert Edward Fortune, Damascus, Va.; University College of Medicine, Richmond, 1898; member of the Medical Society of Virginia; aged 66; died, Dec. 26, 1936, of pneumonia.

Redmond O. Davis, Princeton, Ky.; Hospital College of Medicine, Louisville, 1900; member of the county board of education; aged 68; died, Dec. 23, 1936, of cirrhosis of the liver.

William H. Farrar, Hickory, N. C.; St. Louis Medical College, 1875; member of the Missouri State Medical Association; aged 80; died, Dec. 23, 1936, of intestinal obstruction.

Zuingless U. Loop, Los Angeles; Kentucky School of Medicine, Louisville, 1882; formerly a practitioner in Galveston, Ind.; aged 85; died, Dec. 27, 1936, of coronary thrombosis.

E. Herman Wakelee, Big Flats, N. Y.; University of Maryland School of Medicine, Baltimore, 1884; also a pharmacist; aged 78; died, Nov. 23, 1936, of coronary thrombosis.

George P. Paschal, New York; National University of Athens School of Medicine, Greece, 1911; aged 47; died, Dec. 13, 1936, of angina pectoris and coronary sclerosis.

Rosalie M. Blitzstein, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1898; aged 62; died, Dec. 25, 1936, of hemiplegia and arteriosclerosis.

Thomas F. Costner, Lumberton, N. C.; Jefferson Medical College of Philadelphia, 1882; aged 78; died, Dec. 27, 1936, of cerebral hemorrhage and hypostatic pneumonia.

Gilbert Simpson Bovard, Sierra Madre, Calif.; Stanford University School of Medicine, San Francisco, 1922; aged 46; died, Dec. 12, 1936, of pulmonary tuberculosis.

John C. Toler, Los Angeles; Missouri Medical College, St. Louis, 1881; aged 76; died, Dec. 18, 1936, of teratoma of the left testicle with metastases to the lung.

Frank E. Corwin, Morro Bay, Calif.; Keokuk (Iowa) Medical College, 1897; aged 63; died, Dec. 11, 1936, in Fresno, of gangrene of the leg and arteriosclerosis.

Joseph Patrick Sweeney, Springfield, Mass.; Jefferson Medical College of Philadelphia, 1920; aged 43; died, Dec. 26, 1936, of illuminating gas, self administered.

James Edward Pounds, Avondale Estates, Ga.; Atlanta College of Physicians and Surgeons, 1911; aged 49; was killed, Dec. 23, 1936, in an automobile accident.

Jessie Helen MacDonald, Montreal, Que., Canada; University of Bishop College Faculty of Medicine, Montreal, 1897; aged 76; died, Nov. 24, 1936.

Joseph Kernochan Miller, Bloomingburg, N. Y.; Boston University School of Medicine, 1912; aged 56; died, Dec. 13, 1936, of angina pectoris.

Correspondence

FACTORS IN THE GROWTH AND IDENTIFICATION OF THE GONOCOCCUS

To the Editor:—I have read with interest in Current Comment (The Journal, Nov. 7, 1936, p. 1564) the paragraph entitled "Cultural Methods for the Diagnosis of Gonococcic Infections." In the course of several years' study I have had an opportunity to compare the various mediums recommended for the growth of the gonococcus. Included in two papers (*Proc. Soc. Exper. Biol. & Med.* **31**:899 [May] 1934 and *J. Infect. Dis.* **55**:328 [Nov.-Dec.] 1934) is the description of what proved a most efficient medium. This was a modification of Hitchen's semisolid agar, which differs from the standard mediums in that it contains potassium nitrate (0.2 per cent) instead of sodium chloride (0.5 per cent). Enrichment fluids were added to the medium used for plating and these included whole blood, egg yolk, serum and transudates, each with good result. However, ascitic fluid was found more practical since it was easily obtained, could be filtered through a Berkefeld filter to guarantee sterility, and, since it rendered the medium transparent, proved very desirable for colony study. Autoclaved peptones were used in both the semisolid and the solid agar mediums and, contrary to the results of McLeod and his associates, no inhibitory effect was noted.

There are a number of factors about the growth of the gonococcus which are learned by experience and often by trial and error methods. For instance, freshly poured agar plates and the presence of sufficient moisture in the incubator are important to initial growth. If plated directly, dilution of the pus in a few cubic centimeters of physiologic solution of sodium chloride before streaking may mean a positive culture on the one hand, while failure to do so will often result in a negative culture.

Decreased oxygen tension or the addition of 10 per cent carbon dioxide to the atmosphere in which the gonococcus is grown stimulates the growth, it is true, but this is true not only for the gonococcus but for other organisms as well, so that often the separation is made more difficult. The same purpose is served by the maintenance of a proper incubator humidity.

I have tried the "oxydase test" of Gordon and McLeod and have found it helpful in some instances, but when other organisms also take the dye one is again confronted with the task of picking and staining from a plate which is swimming in dye and the whole flora is more or less confluent. Of course, isolation and subculture are made more difficult in the latter event.

My methods of isolation and growth are described in the papers mentioned. I prefer to inoculate the infectious material directly into test tubes containing semisolid medium, staining by Gram's method after incubation of from eighteen to twenty-four hours, then subculturing to ascitic fluid agar plates and finally identifying the colony types within the next twenty-four to forty-eight hours. If preferred, the infectious material may be diluted in a few cubic centimeters of physiologic solution of sodium chloride and planted directly on freshly poured ascitic agar plates. Instances are encountered in which the growth is sluggish and appears as a faint haze in semisolid agar (and negative when planted directly on solid medium); when stained by Gram's method, the culture may show gram-negative particles, which are suggestive but not definite in morphology. These cultures should not be discarded but transplanted to fresh medium and watched carefully. Several transplants in series will be often rewarded by a culture which finally shows typical forms of the gonococcus.

Absolute identification should not only include fermentation tests, dye tests and Gram's staining, which are all presumptive evidence, but also agglutination or complement fixation, with the use of a number of type specific antiserums.

The problem of identification in chronic cases must be left in the hands of experienced workers. Although bacterial dissociation of the gonococcus is not yet universally accepted, it has nevertheless proved that the gonococcus may change in morphology, staining and biochemical reactions. This knowledge has shown how hazardous it is to dismiss a patient as cured when he may harbor these changed forms of the gonococcus which under proper conditions, either in the same or on transfer to a new host, may reactivate or initiate an acute manifestation of the gonorrheal infection.

Clara Raven, Chicago.
Resident in Pathology, Cook County Hospital.

"LIVER DEATH A HEPATORENAL SYNDROME"

To the Editor:—Your editorial entitled "Liver Death a Hepatorenal Syndrome" (The Journal, January 23, p. 301) directs attention to a very important subject. The discussion following the mention of the three groups is confined largely to the second and third groups, in which death is due to uremia rather than to cholemia and in which a substitution of the term "hepatorenal syndrome" for "liver death" would tend to diminish confusion. In view of the fact that in group 1 death follows not only cholecystectomy but likewise cholecystostomy and other operations not related to the biliary tract, and that it also occurs under certain circumstances without an antecedent operation, the matter of "trauma to the liver" would seem to be a comparatively unimportant factor, with relationship of the liver quite uncertain. Therefore the descriptive term "rapid high temperature death" might very well replace that of "liver death" until more exact information regarding its cause (probably cerebral) has been determined.

Frank Gregory Connell, M.D., Oshkosh, Wis.

EUTHANASIA

To the Editor:—An article in the New York *Herald Tribune* for Sunday, January 17, has just been brought to my attention. It is entitled "Mercy Deaths for 'Incurables' Opposed by 54 per cent in Nation Poll, but Physicians Approve by 53 per cent." This attributes to me, in a survey made by the American Institute of Public Opinion, the following statement:

> Sentimental prejudice should not stand in the way of civilization. It is my opinion that not only incurables, but kidnapers, murderers, habitual criminals of all kinds, as well as the hopelessly insane, should be quietly and painlessly disposed of.

Inasmuch as the following paragraph states that you "take violent exception to this point of view," I wish to inform you that I have never advocated the killing of incurables, although quotations of this sort have been attributed to me several times. In my book "Man, the Unknown," on pages 318-319, I wrote:

> Those who have murdered, robbed while armed with automatic pistol or machine gun, kidnaped children, despoiled the poor of their savings, misled the public in important matters, should be humanely and economically disposed of in small euthanasic institutions supplied with proper gases. A similar treatment could be advantageously applied to the insane, guilty of criminal acts. Modern society should not hesitate to organize itself with reference to the normal individual. Philosophical systems and sentimental prejudices must give way before such a necessity. The development of human personality is the ultimate purpose of civilization.

This is the only statement on the subject of euthanasia that I have ever made. When asked on different occasions for an opinion on "mercy killings of incurables," I have referred the inquirer to this exact reference in my book.

Alexis Carrel, M.D.,
Rockefeller Institute for Medical Research, New York.

CHEMOTHERAPY IN STREPTOCOCCIC INFECTIONS

To the Editor:—One sentence in the leading editorial in THE JOURNAL, January 2, might suggest that my colleagues and I were the first to investigate the protective action of *p*-aminobenzenesulfonamide in streptococcic infections of mice. I should much appreciate it if you would allow me to point out that J. and Mme. Tréfouël, F. Nitti and D. Bovet (*Compt. rend. Soc. de biol.* **120**:756 [No. 36] 1935) were the first to show the activity of this substance in streptococcic infections. We were able to confirm their work, and we further showed that the sulfonamide treatment of mice infected with hemolytic streptococci and meningococci (see also Proom, *Lancet* **1**:16 [Jan. 2] 1937) was more effective than that with the original prontosil.

G. A. H. BUTTLE, Langley Court,
Beckenham, Kent, England.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

SKIN DISCOLORATION

To the Editor:—Will you kindly let me know the etiology, treatment and medical term of the condition of skin discoloration, especially during the summer months? This condition is not due to argyria or to "bismuthia," for the patient has not partaken of any of these drugs at any time. Please omit name.

M.D., New York.

ANSWER.—Any pigmentary disorder in which melanin is the pigment concerned is apt to take a deeper shade in the summer, as the production of melanin is stimulated by the more intense light. The query does not state definitely which of the hyperpigmentations is meant; but it is assumed that common sun tan, freckles or pigmented nevi are not intended.

Chloasma is the most common of the really pathologic hyperpigmentations, characterized by patches, usually ill defined, of light yellow to brown or almost black, occurring most frequently in females and located usually on the forehead or cheeks. The lesions may, however, be anywhere on the skin, symmetrical or asymmetrical, even unilateral at times. The skin is of normal texture in most cases.

Many cases of chloasma occur in women who are pregnant or who suffer from pelvic disorders, or even in young girls about puberty, some of whom have chlorosis. Termination of the pregnancy or cure of the underlying disease often clears the complexion. Several recent writers have maintained that a number of these cases are due to avitaminosis, yielding to administration of vitamin C. Schroeder and Einhauser (Ueber einen Zusammenhang zwischen gestörter Vitamin-C-Resorption und pathologische Pigmentierung bei Gastroenteritis und Achylia gastrica, *München. med. Wchnschr.* **83**:923 [June 5] 1936) assert, however, that infections of the upper bowel may destroy the vitamin ingested or that achylia gastrica may inhibit its absorption. Because of this they recommend its parenteral administration.

It has long been recognized that hypofunction of the anterior lobe of the pituitary gland may cause abnormal pigmentation, just as disease of the adrenal gland causes the pigmentation of Addison's disease. Exophthalmic goiter, the administration of arsenic over long periods, Hodgkin's disease, leukemia, scleroderma, pellagra and many other diseases are associated with abnormal pigmentation of the skin, subject to increase in the summer.

Tinea versicolor increases in the summer because of increase of sweating. The action of sunlight on skin that has recently been wet with certain perfumes or toilet waters may result in sharply defined patches of pigment.

For the removal of pigment not amenable to treatment of its cause or in the numerous cases in which no cause can be found, local bleaching may be tried, it being kept in mind that too energetic methods may result in the increase of the color instead of its removal. The commonest method is the application every evening of:

	Gm. or Cc.
Mercury bichloride	0.6
Alcohol	40.0
Distilled water to make	120.0

M. Sig.: For external use. (Poison.)

This is allowed to dry on and is washed off in the morning. After a number of applications, a slight inflammation may indicate that the process has been carried far enough and the application of the lotion should cease until exfoliation has been completed. Then, if necessary, the process may be repeated.

Other methods of bleaching the skin were mentioned in Queries and Minor Notes in THE JOURNAL, Aug. 22, 1936, page 608.

ESSENTIAL HYPERTENSION

To the Editor:—A French-Canadian boy, aged 17 years, has had more or less continuous headaches for the last four years confined chiefly to the back and right side of the head. The headache is much worse on exertion and precludes all forms of exercise or games. Physical examination showed a systolic blood pressure of 190, diastolic 120, urinalysis negative. No other pathologic condition is found on examination. The condition is presumed to be one of essential hypertension. Please outline treatment and prognosis. Please omit name.

M.D., Ontario.

ANSWER.—The data presented are inadequate for the formulation of proper treatment or prognosis. It is almost inconceivable that, other than the arterial hypertension, "no other pathologic condition is found on examination." If hypertensive arterial disease is responsible for the boy's headaches and his hypertension and it has persisted for at least four years, as intimated by the duration of the occipital pain, certainly changes in the heart, retinas and kidney function should be detectable. The fact that the urinalysis is "negative" does not preclude impairment of the renal function. In chronic glomerular nephritis, such as may be a late sequel of acute nephritis following scarlet fever, the urine may be free of more than traces of protein and show only a few erythroplastids and casts and yet the ability of the kidneys to concentrate the urine may be grossly impaired.

A truly comprehensive, useful diagnosis should so far as possible include consideration of the probable etiology, the anatomic or organic condition and the degree of functional impairment. Merely giving a disorder a name does not suffice. In view of the patient's youth, certain possible etiologic factors stand out with prominence. The following factors must be considered and either ruled out or proved present: pituitary basophilism, brain tumor (both suggested by the severe headaches), coarctation of the aorta (rare, but a factor one must not forget), nephritis, chromaffin tumor, usually of the adrenal (very rare, but still worthy of thought), and metal intoxication such as from arsenic (exposure perhaps due to previous and unsuspected medication, as with solution of potassium arsenite). Polycythemia vera may also be mentioned as a possible factor. Data regarding the boy's family history might be most valuable in revealing constitutional vulnerability.

In hypertensive arterial disease, commonly called "essential hypertension," it is the rule that the younger the patient the more rapid is the progression of the disease and therefore the darker the prognosis. In brain tumor the prognosis depends not on the hypertension but on the primary disease. A persistent diastolic tension of 120 mm. is of ominous import, particularly if it is fixed and does not fall with vasodilator medication. The amyl nitrite test should determine this point. If the diastolic tension remains relatively fixed, it is more than probable that extensive nephrosclerosis exists. This should be confirmed by renal function studies. Uremia is the more common termination of hypertensive disease in patients as young as this one. On the other hand, hypertension due to coarctation of the aorta offers a relatively good prognosis.

Therapy is dependent on accurate diagnosis and recognition, so far as possible, of the probable etiologic factors. Curative therapy is logically divided into three principles: (1) therapy directed against etiology, (2) therapy to aid in giving rest to the injured structures and (3) therapy attempting to insure adequate tissue nutrition and oxygenation. The first principle is applied in removal of foci of infection, correction of dietary and other indiscretions, attention to noninfective intoxications and recognition of other causative factors. As in hypertensive arterial disease the arterioles, myocardium and renal parenchyma are the structures primarily injured, rest for these is best assured with vasodilator medication, which may (if arteriolar sclerosis is not extensive and if the causative pressor factors are not too active and persistent) reduce the arteriolar spasm, relieve the myocardium of some of the excessive burden and improve the renal circulation. Small, frequently repeated

doses of the alkyl nitrates, aminophylline, bismuth subnitrate 0.65 Gm. three times a day or intramuscular magnesium sulfate may be tried. (See Stieglitz, Abnormal Arterial Tension, New York, National Medical Book Company, 1935.) Sodium thiocyanate is a dangerous drug in inexperienced hands and in the presence of renal impairment is contraindicated. The only safe method of using thiocyanate clinically is that of Barker (THE JOURNAL, March 7, 1936, p. 762), which involves frequent determination of the blood and urine thiocyanate content to warn of retention of the drug. The last principle of therapy, which is often grossly neglected, includes energetic attempts at correcting anemia, which is commonly present in hypertensive disease, and in insuring adequate nutrition.

EFFECTS OF ALUM IN DIABETES

To the Editor:—A woman, aged 52, had markedly severe diabetes some years ago and with diet now has only infrequent symptoms. She can make herself sugar free if and when she does adhere to a more or less restricted diet. Like all patients with diabetes, she likes to go on a spree once in a while. To get to the point in question, however, she tells me that for a number of years she has been able without dieting much, if any, after one of these sprees to cause her urine to test sugar free and to feel much better by taking a solution of ordinary alum; i. e., 4 teaspoonfuls of water and one teaspoonful of powdered alum, taking one teaspoonful in half a glass of milk from three to four times daily. This, she says, will make her urine "clear" in about three days to one week, being "red" at the start. Can you tell me the pharmacology and possibly the physiologic reason for this? I have not tested her urine before and after this medication, as she is a thoroughly reliable person. Needless to say, blood sugar tests are done infrequently here and I have not done them. I thought that possibly the alum might have an action on the kidneys to raise the threshold for sugar. However, it seems to me that if that were true her blood sugar would rise and she would feel worse instead of better. Please omit name.

M.D., Michigan.

ANSWER.—We have been unable to find any reference in the scientific literature to the use of alum in the treatment of diabetes.

If, as suggested, the alum raises the kidney threshold for sugar, simultaneous blood and urine sugar determinations at that time would reveal this effect.

This patient can render herself sugar free after a spree by following a restricted diet. A more probable explanation of the effect of alum may therefore be that this strongly astringent material interferes with the absorption of foodstuffs from the gastro-intestinal tract and is therefore equivalent to a dietary restriction.

KINGSBURY-CLARK METHOD FOR ALBUMIN IN URINE

To the Editor:—Recently I have had the opportunity of seeing described in several medical journals various methods for rapidly determining the presence of albumin in the urine. Though the Kingsbury-Clark method has been described previously I feel that it again should be called to the attention of the general profession, especially since the model C Clark lamp has been placed on the market. During the past ten months all the urinalyses made in the office laboratory have been done by this method, which include approximately 3,000 examinations. This lamp is so devised that it is possible, by an extremely simple procedure, to examine fifteen specimens within fifteen minutes and the results obtained are unusually accurate. The apparatus has been most beneficial for making urinalyses for insurance companies, in which a definite amount of albumin in 100 cc. of urine can be reported. This method is also most helpful when combined with a microscopic study of the urine in observing the progress of the various inflammatory conditions of the kidneys. The model C Clark lamp with instructions for the technic employed can be purchased from R. P. Cargille Company, 118 Liberty Street, New York, at a very reasonable cost.

CHESTER W. LONG, M.D., Milwaukee.

ANSWER.—The Kingsbury-Clark method for the determination of albumin in the urine was described by N. R. Blatherwick, Ph.D., in the *Journal-Lancet* **53**:57 (Feb. 1) 1933. The article also included a technic for the Benedict picrate method for sugar determination in the urine.

This method is quantitative and therefore of great value in following the progress of renal disease. The test is based on the precipitation of albumin by sulfosalicylic acid. The amount of albumin is determined by comparing with a series of standards representing from 10 to 100 mg. of albumin per hundred cubic centimeters of urine. This comparison can be made by daylight or better still by using the model C Clark lamp, to be described.

The Kingsbury-Clark test is performed as follows: Pipette 2.5 cc. of centrifugated urine into a test tube graduated at 10 cc. and add 3 per cent sulfosalicylic acid to the 10 cc. mark. The sulfosalicylic acid solution is made by dissolving 30 Gm. and diluting to 1,000 cc. with distilled water. Invert the tube to mix and allow to stand ten minutes, and compare the turbidity with the permanent turbidity standards. Record the value of the standard most closely matched as the albumin content of the urine. The standards are 10, 20, 30, 40, 50, 75 and 100 mg. of albumin per hundred cubic centimeters of urine. When more than 100 mg. is present the urine is diluted quantitatively and reexamined. A value of 50 mg. per hundred cubic centimeters corresponds to what is usually called a trace by the Heller nitric acid or heat and acetic acid tests. The standards should be replaced every nine months.

The model C Clark lamp was originated by Dr. Charles P. Clark of the Mutual Benefit Life Insurance Company. It has been used by life insurance and clinical laboratories since 1926. It provides a constant source of light which permits comparisons to be made independently of variations of natural daylight. It yields results of great accuracy. Differences of 0.001 per cent of albumin in the range 0 to 0.03 per cent of albumin are said to be detectable with this lamp. The tubes are lighted nephelometrically, but a black strip at the bottom of the rack enables the observer to make comparisons by transmitted light, or turbidimetrically. The lamp is also useful for observing minute traces of any precipitate, or insoluble or suspended matter.

The price of the Clark lamp, model C, is $26.50. The set of eight standards costs $7, and matched tubes graduated at 2.5 and 10 cc. are $2 a dozen. These are supplied by the R. P. Cargille Company, 118 Liberty Street, New York.

SENSITIZATION DERMATITIS IN ASTHMATIC PATIENT

To the Editor:—I am 24 years old and for six years have had what has been diagnosed as chronic eczema, allergic eczema and neurodermatitis of the face, neck and scalp, and at various times on the antecubital and postpopliteal areas, the wrists and the groin. The eczema of the head followed a severe impetigo for which ammoniated mercury was used. During the past two years I have been subject occasionally to asthmatic attacks. During these six years I have used various metallic and other ointments and also received a great variety of injections, both metallic and endocrine in nature. I also received x-ray and ultraviolet ray treatments. I have also experimented extensively with elimination diets and have spent several weeks in "allergen-free" rooms. None of these therapeutic efforts have been of any avail. About seven months ago, blurring of the vision led to the discovery of incipient bilateral cataracts, which have progressed rapidly until now reading is impossible. The opacities are located centrally near the posterior capsules of both lenses. I should like what information you can give me as to the etiology and prognosis of these cataracts. I have received different opinions from different sources, some saying that operation is inevitable and others telling me of cases in which the cataracts receded with a cure of the eczema. My next therapeutic effort will be a change of climate and I should like to know whether to relieve my eye symptoms before I do so. Could you also tell me how often these stubborn eczemas respond to changes of climate and are there any particular localities that you recommend? I thank you for any information you may give me and for any suggestions you may offer. I should appreciate a prompt reply, as my eye condition is progressing rapidly and I should like to make a decision. Please withhold name.

M.D., New York.

ANSWER.—The description is that of a sensitization dermatitis occurring in an allergic individual (asthma). This type of eczema is usually stubborn in its response to therapy, because of the multiplicity of factors that usually form the basis for the sensitivity. Nervous factors such as strain or exhaustion are profound contributors in the precipitation or aggravation of the attack.

The effect of climate on cases of this type is variable. Improvement is often noted after a change, but it is a question in some cases whether this improvement is due to a change of certain sensitizing factors in the old environment or is a result of the calm and relief of nervous tension usually obtained in new surroundings. The choice of a locality should be governed chiefly by previous experience with the effect of hot dry climates, or of moisture and dampness on the asthma.

Although mention is made of numerous intelligent therapeutic measures, together with elimination diets, there is no comment regarding skin tests. Investigation by scratch, intradermal or patch test methods for possible sensitivity to foods, pollens, bacterial proteins and animal epidermals should be instituted to see whether any information can be gained from these sources regarding precipitating factors for the asthma and eczema. Such information would be of value also in the selection of suitable regions to accomplish a beneficial change of climate.

There is probably no direct relation of the lens opacities to the eczema, except as a possible associated defect of vulnerable ectodermal tissue. If there is definite injury of the lens fibers with opacities, this damage is permanent, and one cannot expect a restoration of these definitely damaged areas with clearing up of the eczema.

If the eye condition is making rapid progress, the decision of the attending ophthalmologist should be followed as to the

present immediate management. However, if in his judgment a delay of a few months is not associated with any great danger of marked progression, a change of climate, in the light of these comments, might be in order. Improvement in the skin condition may result in considerable improvement of the general and nervous state, with its associated possible beneficial influence on the eye condition, and favorably influence subsequent operative procedures.

PYELITIS IN PREGNANCY

To the Editor:—A primigravida one week over seven months, aged 27, weight 115 pounds (52 Kg.), started vomiting early in January, about as usual. Early in April she complained of her urine scalding her and then of frequent urination. In about one week she went to bed with a pronounced chill, a temperature of 103 F., and severe pain in the back midway between the kidney and the bladder, sensitive to touch and not relieved by any medicine or posture. Methenamine made little difference in the slide picture, which had plenty of pus cells, some blood cells, little clumping and no casts. After one week in bed the patient was up and about, feeling well, although medicine was continued, when in a week's time the same chill, temperature and pain recurred. She got so she could not even take water and keep it down. I took away all medicine and sent her to the hospital in care of one of our best surgeons, and now after one week of dextrose intravenously she is back home in bed and taking three meals; but still the first thing in the morning she raises or spits up. Now delivery is as yet seven weeks away. This in my opinion will light up again as soon as she gets about. She certainly cannot lose any more and go that long. If a cesarean is the elected operation, should she be sterilized? I should think that a catheter would be dangerous in a pyelitis of this type. How much longer am I to chance with nature? What will be the borderline here? Please advise me what to do and when to do it or just to keep her in bed. If she becomes pregnant again will the same condition recur or is this the colon bacillus? Please withhold my name. M.D., New York.

ANSWER.—The patient should have ureteral catheterization for drainage of the kidney pelves if there is persistent pyuria and fever. That should suffice to permit the pregnancy to progress to a normal termination. If nourishment sufficient to maintain nutrition is retained, the blood pressure remains low and the urine remains relatively free from albumin and casts, expectant care is preferable to intervention.

The patient should be at rest, most of the time in bed.

Pyelitis is not, in itself, an indication for sterilization at the time of cesarean section. The general health of the patient and her wishes relative to having more children are equally important factors in determining whether further childbearing should be prevented. Many patients escape recurrence of the pyelitis in subsequent pregnancies.

PERIPHERAL NERVE INJURY DURING CHILDBIRTH

To the Editor:—I have under my care a 2 weeks old male infant who has a congenital deformity of the right external ear, it being about one-fourth the size of the left. The child has also a right facial paralysis (central). The pregnancy was normal and the labor was short and not difficult. However, the infant was pale and lethargic for about four days after birth. Now it is alert, takes feedings well and is gaining properly. The facial paralysis persists even though there is apparently no evidence of increased intracranial pressure or other neurologic signs indicating an extensive lesion. The questions confronting me are these: 1. Does the facial paralysis result from a birth injury or is it congenital? 2. If either, what therapeutic procedures may be followed advantageously? Should one consider nerve transplanting later? When should plastic surgery be resorted to for correction of the ear deformity? If delay is advised are there any measures that might prove helpful if done in the meantime. Kindly omit name. M.D., Tennessee.

ANSWER.—1. It is possible that facial paralysis may have resulted from a trauma inflicted on the peripheral nerve during birth, in which case the electrical excitability of the area supplied by the peripheral nerve would be diminished or absent. It has also been suggested that retardation of the growth of the external ear and injury to the peripheral facial nerve might be due to the pressure of amniotic bands in utero. In the central or supranuclear form of paralysis either the upper or the lower branches of the facial nerve are involved, and consequently there is an absence of complete paralysis of this nerve. The response to electrical stimulation in cases of facial paralysis of central origin is normal. A lesion of central origin may be due to hemorrhage or edema or aplasia of the nuclear centers.

2. Peripheral lesions frequently recover spontaneously. Treatment with the faradic current has been advised in the later stages. Nerve transplantation would offer no hope in the treatment of this patient.

The congenital deformity of the ear, also known as microtia, may be of variable degree, from defective development to complete absence of the external ear. It has been observed that most of these malformations occur on the right side. Not infrequently there is associated with this deformity partial or complete atresia of the external meatus or of the auditory canal. Gustav Alexander believes that, on account of the undeveloped condition of the cartilage, plastic operations in this region should not be undertaken until the sixth or eighth year (Die Ohrenkrankheiten im Kindesalter, Pfaundler and Schlossmann, Handbuch der Kinderheilkunde, vol. 7). Joseph C. Beck (in Jackson and Choates, The Nose, Throat and Ear, and Their Diseases) notes that there is great difficulty in obtaining a good cosmetic result when the external ear is more than two-thirds absent. He believes that surgery has not proved equal to the task. Both he and Alexander believe that for the present the use of a prosthesis, the replacement of an absent part by an artificial one, gives the most satisfactory results.

MENSTRUAL SKIN ERUPTIONS

To the Editor:—A white woman, aged 28, married and childless, has been complaining intermittently for several years of irritation of the inner aspects of the labia minora. This condition presents itself in the form of sebaceous cysts ranging in size from a green pea to the head of an ordinary straight pin. I have removed under local anesthesia two of the larger cysts in toto and have opened the smaller ones and expressed sebaceous material or thin watery appearing pus. At the menstrual period these lesions become extremely painful from the contact of the sanitary pad. I have advised the use of mildly antiseptic and healing douches and also application of butyn or nupercaine ointment. These measures give only temporary relief and in a few days there appear one or two small white heads at the opening of the ducts of the labia. The vaginal secretion is normal in amount and alkaline in reaction. I have not attempted any form of cauterization because the appearance of the cysts and the frequency of recurrence almost prohibit it. Please advise me as to some method of treatment. Please omit name. M.D., Florida.

ANSWER.—The local measures employed would seem in the main to have been rational, though ointments are usually not as satisfactory in the treatment of such local infections as the frequent application, two or three times a day, of some mild antiseptic, such as 5 per cent mercurochrome. As douches have been recommended, it is assumed that the patient has a leukorrhea, which might well be keeping up the vulvar infection. If, as is likely, the leukorrhea is of cervical origin, active treatment of the latter is indicated, preferably with cauterization if there is a definite endocervicitis or erosion.

Increased activity of the vulvar sebaceous glands is normal during menstruation, so that a flare up of the condition at this time is not surprising, aside from possible irritation by the menstrual napkin or discharge. In fact, it is not rare to see vulvar skin eruptions, especially herpes, occurring only in relation to the periods. For this reason it may be worth while to try organotherapy in this case. Good results have been reported in various menstrual skin eruptions from the use of both estrogenic substances and the anterior pituitary-like principles of pregnancy urine. If the former are used, a good plan would be to give theelin or similar type of preparation in hypodermic doses of about 2,500 international units every second or third day, beginning five or six days before the periods and keeping these up until after the period is over. If this is not effective, the same plan may be followed with antuitrin-S or follutein, in an intramuscular dosage of 100 units.

TREATMENT OF ASPHALT BURNS

To the Editor:—Kindly inform me as to what is the best method of caring for asphalt burns—immediate as well as office care.

C. J. PATTHOFF, M.D., Springfield, Ill.

ANSWER.—Asphalt burns and tar burns are characterized by a rapid fixation on the surface of the traumatizing agent. In burns of this type the crust formed by the fixation of the tissues with asphalt or tar may be allowed to remain if it is obvious that the burn is superficial. When the burn is severe and deep, débridement should be done, preferably under gas anesthesia. A satisfactory dressing of the wound following débridement is accomplished by the direct application to the surface of fine mesh gauze (40 by 44), over which fluffs of gauze should be placed. In this second layer, several perforated tubes should be incorporated to serve as a means of keeping the wound constantly wet with saline solution. In large wounds, skin grafting should be resorted to as soon as practicable. When burns are superficial and there has been no fixation of the tarry substance on the surface, tanning of the burned area with 5 per cent tannic acid solution is a satisfactory method of treatment. Butesin picrate ointment is also an efficacious dressing for these relatively mild burns.

EDEMA OF ANKLES

To the Editor:—A man, aged 38, complains of swelling of both ankles and feet for the last fifteen years. He has been employed in a slaughter-house for the past twenty-two years and has been handling hogs and hog meat constantly during this period. He works at least ten hours a day and is called on to perform duties in the smokehouse, where the temperature averages 100 F., and in the refrigerators, where the temperature averages 30 F., continually going from the one extreme to the other for short intervals. The family history is entirely negative; his past history is noteworthy because he states that he has had none of the childhood diseases. He had influenza in 1918, has occasional sore throats, and three years ago had "yellow jaundice" and vomiting, which was diagnosed by a physician as ptomaine poisoning. There is no history of cardiac, lobar, renal, circulatory, syphilitic or malignant states. His ankles began to swell about 1920, when they "puffed up considerably all of a sudden." They do not swell at all in winter but, as soon as warm weather begins, "puff up and hang that way." The swelling disappears completely during the night but begins immediately on arising and gradually grows more severe as the day progresses. The condition has become worse during the last four weeks, so that he is no longer able to tighten his shoes. The last four days, since the onset of the extremely warm weather, the swelling has not receded at all during the night. He is able to walk without any difficulty, though he is "very tired in his legs." Above his knees he feels perfectly well but below them he feels played out. Other contributing facts are that the bowels are constipated; purgatives are necessary but the medication has not been too severe and has varied. There are occasional frontal headaches, probably due to refractive error; he drinks from eighteen to twenty cups of coffee every day, sleeps well and is not nervous. He has no aches or pains and is in excellent health, excepting for the condition described. On examination he is apparently healthy, is well developed and nourished, and lies comfortably on his back. There is no cyanosis. The pupils react to light and in accommodation. There is a superficial grayish ulceration of the lower gum which the patient ascribes to irritation from his dental plate. There is no glandular enlargement. The lungs are clear on auscultation and there is no impairment on percussion. The heart sounds are clear and are regular in rate, force and rhythm. The abdomen is normal; there is no enlargement of the liver or tenderness over this region. The genitalia and rectum are normal. Both ankles and the dorsum of both feet are edematous; the skin is tense and shiny and pits deeply on pressure. There is no discoloration of the skin. However, there are numerous small crusted excoriated areas with an inflamed areola over both legs and feet. There are a few small blebs present and one large area where a large bleb ruptured. Complete laboratory work (blood and urine) is negative. The blood pressure is 130 systolic, 80 diastolic. Is this edema due to circulatory deficiency resulting from the long standing exposure to variable extremes in temperature? Is there any occupational disease that would account for the condition? Do you think that passive vascular exercise would be helpful? Please omit name.

M.D., Maryland.

ANSWER.—The edema described is suggestive of some impediment to the return venous flow. It is sometimes seen in those whose employment forces them to work for long periods in a standing position, and especially when associated with high room temperature. It is at first due to a decreased tone in the vessel walls, secondarily to the heat, and to the prolonged standing position. Later varicosities frequently develop. Other sources of mechanical obstruction to the return venous flow should be considered. The condition appears from the description to be of circulatory origin, but a lymphatic edema must be considered. Passive vascular exercise is not indicated in this case. Well fitting elastic stockings might be tried.

ZINC OXIDE FUMES FROM EFFECTS OF ACETYLENE TORCH ON GALVANIZED IRON

To the Editor:—I am interested in knowing what type of fume or gas is given off in the process of cutting galvanized iron sheeting with an acetylene torch; also which of these gases are deleterious when inhaled in the process of cutting galvanized iron sheeting with an acetylene torch and without the use of any mask for protection. Do the fumes from ordinary tar when boiling, and inhaled in the course of work, entail any great danger? I should also like to be referred to any literature that I can investigate.

M.D., Ohio.

ANSWER.—The chief fume produced in the burning off of galvanizing with an acetylene torch is zinc oxide. This zinc oxide is likewise the chief disturbing agent for exposed workmen. The high temperature of an acetylene torch readily vaporizes galvanized coating. This operation, because of the high temperatures involved, constitutes one of the most ready causes of zinc "metal fume fever." In the trades this condition is widely known as "zinc chill," "zinc ague," "spelter chill," "brassfounders' ague," and so on. Remotely the possibility exists that other gases or fumes might arise from this operation. Lead may be present in small quantities as an impurity in the zinc. Carbon monoxide has been known to arise. Hydrogen sulfide has been found in acetylene gas. However, the presence of these other gases or fumes ordinarily may be disregarded as improbable. The practical hazard is from the zinc.

Ordinary coal tar, when boiling, emits vapors that may be somewhat irritating to the skin, conjunctivae and mucous membranes. So complex is the mixture of these vapors that significance may not be attached to any one agent. One case attributed to boiling tar was reported in THE JOURNAL, March 2, 1929, page 695. In view of the wide applications of hot tars and asphalts, both inside buildings and in the open, such as on road work, it would appear that proved ill effects are not well established.

DINITROPHENOL—DELAYED HEALING OF WOUNDS

To the Editor:—In July 1934 a patient of mine took an advertised dinitrophenol product for one month. During this period she lost 30 pounds (13.6 Kg.). Thereafter she took no more of this preparation and soon regained the pounds that she had lost. In October 1935, a year and three months after the dinitrophenol episode, she was operated on by a surgeon for prolapse of the uterus. The usual midline incision was made. Following the operation the patient developed a "stitch abscess" and this was followed by complete nonunion and sloughing of the tissues of the abdominal wall. In spite of all the usual methods of combating such a problem, namely, the use of various antiseptic dressings, exposure to the air, light therapy, and so on, the process has been progressive. Recently there has been a breaking down of the tissues overlying the anterior spines of the ilia, with tunneling extending to the original site of incision. The laboratory work in this case has not been comprehensive, showing only the presence of staphylococcus organisms. There does not appear to be any evidence of actinomycosis, blastomycosis or other fungus disease. In summary it may be said that the abdominal wall tissues apparently have no resisting and healing properties and the question arises whether the dinitrophenol medication fifteen months before operation could be a factor in the lack of healing properties demonstrated at this time. I should appreciate some word as to whether the dinitrophenol could be a factor in the nonhealing of this wound. Please omit name.

M.D., Illinois.

ANSWER.—Dinitrophenol has no influence on the healing of wounds. Experimental attempts have been made to determine whether or not it might increase the speed of healing of incisions, but carefully controlled experiments showed that it had no effect whatever. Dinitrophenol is excreted from the body within a few days after taking, so that there could not possibly be any effect on the healing of a wound incurred fifteen months after the administration of dinitrophenol.

The infection sustained in this instance resembles the type of infection so aptly and completely described by Meleney of New York. He finds that a 50 per cent suspension of zinc peroxide in water is a very effective agent in the treatment of these infections. The infection described is probably due to the so-called micro-aerophilic hemolytic streptococcus. Zinc peroxide slowly liberates oxygen in the depths of the tissue and in Meleney's hands has proved an excellent therapeutic agent. There are three cases reported in the literature of similar infections controlled by the use of maggots according to the method of Baer of Baltimore. Allantoin is replacing maggot therapy, and more recently urea, a decomposition product of allantoin, has been indicated as the basic agent in the effectiveness of this therapy.

ANESTHESIA OF CHILD

To the Editor:—A girl of 6, of what used to be called "nervous temperament," who has a mitral systolic murmur but no other evidence of heart disease, was given ether for a tonsillectomy. No drugs were given before the ether. She went to sleep without any struggle and as soon as she was under the anesthetic her pupils dilated to the fullest extent and would not respond to light. The cornea remained moist. In all other ways she seemed in good condition. Pulse, respiration, color, were all good, and only a minimum amount of ether was needed to keep her quiet, and the anesthetic was continued until the operation was finished. She recovered well. I was alarmed, because I understood that such pupils are a danger signal unless the patient is coming out of the anesthetic. Did I need to be alarmed? The pupils remained dilated until she was well awake.

C. E. CASWELL, M.D., Wichita, Kan.

ANSWER.—Anesthesia may be divided into several degrees or stages of narcosis. The three stages recognized are the stage of light anesthesia, the stage of deep anesthesia and the stage of paralysis or death. The depth or degree of narcosis may be known by the pupillary reaction to light.

When patients have been given no hypnotic drug as a preliminary to anesthesia, the pupillary reaction is the most valuable guide that the administrator has to the depth or degree of narcosis. Dilatation from operative stimuli is transient and need not be confounded with that produced by the anesthetic. A dilated pupil that reacts quickly to light indicates a light anesthesia. A dilated pupil that reacts slowly to light means a profound anesthesia. A pupil that is widely dilated and does not react to light shows a dangerously deep anesthesia, and respiratory paralysis is at hand. A contracted pupil indicates

a moderate degree of anesthesia. In testing the pupillary reaction, the amount of light that strikes the pupil must be taken into account. Naturally, if the light is dull the reaction will not be so active. When elevating the lid, the finger should be gently but firmly pressed close to the margin, and the lid suddenly raised. If the lid is slowly brought up and the narcosis is very light, the reaction may be lost. When there is any resistance to manipulating the lid, the anesthesia is very light, too light for operative work.

In all probability, as only a minimum amount of ether was needed for the anesthetic, the patient was in a stage of light anesthesia and there was no cause for alarm.

SPONTANEOUS PNEUMOTHORAX

To the Editor:—A man, aged 35, whose past history is negative for any serious illness except for a toxic goiter which was removed ten years ago, suddenly developed a spontaneous pneumothorax on the right side six years ago, although apparently in good health. There was no injury or strain, the left lung was normal, and he had no fever at any time, no loss of weight or weakness, and no cough or sputum. Tuberculosis was assumed to be present and he was kept at rest for three months. The lung expanded completely and x-ray examination showed no evidence of tuberculosis, except some pleural adhesions at the base. The man gained in weight, remained in good health for six years, and then again, without apparent cause, there was a recurrence of the spontaneous pneumothorax on the same side. I would appreciate any suggestions as to cause and further treatment, especially as to prevention of future accidents.

E. M. BERGER, M.D., Chicago.

ANSWER.—The most common cause of rupture of the visceral pleura producing pneumothorax is tuberculosis. From 70 to 90 per cent of cases may be traced to this cause. When pneumothorax develops in tuberculosis it is usually seen in moderately or well advanced cases. It may be found in minimal cases in which the initial lesion is situated close to the surface of the lung, more commonly in the lower part of the lung rather than at the apex. The x-ray evidence of pleural adhesions at the base of the lung in this case is at least suggestive of tuberculosis as the cause of the pneumothorax. There is a group of cases, which have been called spontaneous or idiopathic, in which a healthy young person develops pneumothorax without any apparent cause. In such cases it is always difficult to exclude tuberculosis with absolute certainty. The most common cause of spontaneous idiopathic pneumothorax is the rupture of an emphysematous vesicle. These vesicles depend on scar tissue involving a bronchiole in such a manner as to produce expiratory obstruction. There results gradual overinflation of the affected lobule, with ultimate perforation into the pleural cavity. The great majority of these cases occur in the male sex, more than 60 per cent in the third decade. This might be explained in part by the greater physical activity of the sex and also suggests the treatment as to the prevention of future accidents; that is, to lessen the activity of the patient.

BITE OF BLISTER BEETLE

To the Editor:—I would appreciate information on a case which I have, the history of which is as follows: The patient left my office late one evening and proceeded to his home in Philadelphia by way of automobile. In the course of the drive he felt an insect on the anterior region of his neck, which he crushed and killed where it had alighted. The insect, he states, felt like a beetle. About six hours later he felt an intense burning in this same area on the neck. A few hours later he noticed a large blob, which peeled off, leaving an area approximately an inch square, which had the appearance and feeling of a severe burn in which the epidermis is destroyed and part of the dermis. Two days later the wound was of the same size, still painful and burning, red, oozing a serous fluid, depressed and sharply marginated, with destruction of the superficial layer of the skin. What is the cause of this lesion, what insect could produce it, and what would be the treatment?

M.D., Pennsylvania.

ANSWER.—There are many beetles throughout the United States that are related to the Cantharis beetle of Europe, from which cantharides powder is made by drying and crushing the bodies. All these insects are known popularly as blister beetles. Some forms are so destructive to potatoes, beans, beets and other vegetables that they have been called potato bugs. They also destroy clematis, asters and other flowers and appear in great numbers in years following those in which grasshoppers have been abundant, as they breed in the ground and their early metamorphic forms feed on the egg cases of the grasshoppers.

One of these blister beetles is so common in Pennsylvania that it is known as the Pennsylvania blister beetle, Epicautis pennsylvanica. All forms, as the name implies, have the property, when crushed, of blistering human skin.

The best treatment is prophylaxis. Brush the beetle off respectfully, instead of rudely crushing it. After the bulla forms, puncture and drain it with care, so that its contents are not left on the neighboring skin, and apply a dry dressing over the collapsed bulla. When the crushed bodies of the beetles come in contact with raw surfaces they sometimes produce serious necrosis. If the top of the bulla has been removed, a cool wet dressing of 8 per cent solution of aluminum acetate may be applied, and then a dressing of 10 per cent boric acid in cold cream.

TREATMENT OF SYPHILIS

To the Editor:—About a year ago I received the report of an early case of syphilis. The lesion had been diagnosed as a chancre and the darkfield examination had been reported positive by a reliable laboratory. The patient then changed doctors. His present physician told him that he was healed and did not need further treatment and took two Wassermann tests, which were both reported negative. I called the boy in and explained the situation to him, but he is convinced that he is safe and nothing short of armed force, which I hate to resort to, will bring him in for treatment. I dislike also antagonizing the older practitioner by insisting that this case is not closed. I would like your opinion at least for my own satisfaction. To summarize: A young healthy man, aged 20, reports with a clinical chancre, proved by darkfield, and receives a few injections of neoarsphenamine, whereupon the lesion disappears. A month later the Wassermann reaction is negative and he refuses further treatment. Am I within my rights, as assistant health officer in charge of the county venereal clinic, in insisting that he take further treatment? Is the second consultant wrong in advising him that he does not need "any more shots"? What is the ethical thing to do?

M.D., Michigan.

ANSWER.—In a seronegative primary syphilis, which the description indicates, continuous treatment for one year should be given. The negative Wassermann reaction mentioned does not relieve the patient of taking or his physician of giving an adequate amount of treatment. Adequate treatment includes approximately twenty-six injections of arsphenamine or its equivalent in neoarsphenamine and from twenty-eight to thirty-two injections of a bismuth compound or its equivalent in mercury. (See Moore, J. E.: *Ven. Dis. Inform.* **10**:53 [Feb. 20] 1929.)

EPIDIDYMITIS AND PROSTATITIS

To the Editor:—A man patient developed a urethral discharge twelve days after sexual intercourse. Fearing gonorrhea, he visited a local doctor. Urethral smears were positive for gonococci. Anterior urethral instillations of 0.5 per cent strong protein silver were instituted by the physician and given daily over a period of two months. Two weeks after the onset of the urethral discharge, a left epididymitis developed, which cleared up in about ten days. However, with the two-glass urine test, shreds persisted in being present in the first glass with the second glass being entirely clear. Because of this, the patient decided to change physicians and came to me two months and one week after onset of the urethral discharge. On examination he presented nontender testicles, normal in size. There was no urethral discharge. The prostate was normal in size and not tender. The first glass of urine showed the presence of a few shreds, the second glass being clear. Treatment instituted was the discontinuance of anterior instillations of strong protein silver and substitution of intradermal injections (0.1 cc.) of Corbus-Ferry gonococcus filtrate every six to seven days. These injections have been given for the past six weeks and also the local use of bacterial antigen daily for the past two weeks. The first urine glass still shows a few shreds with the second glass being clear. A prostatic smear showed no gonococcus organisms. Would a gonococcus complement fixation test be indicated to determine whether gonococcic infection is still present? What does the persistence of shreds in the urine indicate? Does the use of the Corbus-Ferry gonococcus filtrate influence the result of the complement fixation test? Would dilation of the urethra on several occasions aid in clearing up the urine? If so, would full dilation of the urethra be indicated in this case? Kindly omit name.

M.D., New York.

ANSWER.—In view of the fact that the patient developed an acute epididymitis following urethral infection, he has, or had at that time, an infection in the prostate and seminal vesicles. Therefore an examination of the strippings from the prostate and seminal vesicles should be made to determine whether or not the strippings show pus. If it is not possible to obtain the expressed fluid at the external urethral orifice, a three glass test should be made and the contents of the third glass centrifugated and the sediment examined for the presence of pus. If there is evidence of prostatitis and vesiculitis the patient should use heat by rectum in the form of a rectal heater or sitz baths and gentle massage every five days, the treatment to be continued until the infection in the prostate and seminal vesicles has cleared up.

The shreds in the first glass mean infection in the anterior urethra. If pus is present at the external urethral orifice, it should be examined for gonococci. If no pus can be obtained, the shreds should be fixed on the slide and stained for gonococci. If no gonococci are found either in the urethral discharge or in the shreds, it is justifiable to examine the anterior urethra with a diagnostic bougie for the presence of granula-

tions. If granulations are found, these should be treated with sounds. Sounds should be passed once every five days and allowed to remain in the urethra for two or three minutes and it might be well to massage the urethra on the sound. Following the passage of sounds a urethral injection of from 0.5 to 1 per cent silver nitrate should be done at the office. At home the patient may use a hand injection of 0.26 Gm. of zinc sulfate, alum and phenol in 120 cc. of water, every morning and evening. The complement fixation test would not add anything much in the way of mapping out the program of treatment.

INVOLUNTARY BOWEL ACTION IN DIABETIC PATIENT

To the Editor:—A diabetic patient consulted me recently concerning a distressing condition; namely, involuntary bowel movements while asleep. He is a white man, aged 29, fairly well nourished, and is able to do office work. He has been under diabetic treatment for about twelve years, during which time he has been hospitalized both for hyperglycemia and for insulin shock. He is doing well now on 30 units of insulin before meals. Last September he had a severe edema of the lower extremities and was told by his doctor that it was due to an existing hyperglycemia. This condition gradually cleared up, but he immediately developed the present bowel trouble. He has complete control of defecation while awake. The involuntary action occurs almost every morning about 3 o'clock. Other history and examination are essentially negative except for an infected antrum, which developed after the present complaint. The blood Wassermann reaction is negative. Paregoric has been taken in large doses and gives slight relief. Please inform me as to the cause and treatment of this condition. Omit name, please, if published.

M.D., West Virginia.

Answer.—Usually in diabetic patients, diarrhea can be traced to some such cause as colitis, enteritis or achlorhydria, or to some other complication. However, diarrhea without blood or pus in the movements is especially difficult to contend with at night. Sometimes it occurs in young or middle-aged patients. Usually, but not always, it is associated with emaciation and lack of control of the diabetes, and achlorhydria is usually present. Sometimes a deficiency of the external secretion of the pancreas and an increased fat content of the stool can be demonstrated.

In a man, aged 25, recently studied, x-ray evidence of a deficiency disease was shown in the roentgenograms of the small intestine. The treatment of the condition is often unsatisfactory. The use of vitamins, sometimes of liver extract, and adequate control of the diabetes are of fundamental importance.

CANCER OF CERVIX IN PREGNANT WOMAN

To the Editor:—A sextigravida, aged 35, with four living children, has an epidermoid carcinoma of the cervix proved by biopsy. She is also pregnant at about the four and one-half to fifth month. I sent her to a well known cancer hospital in New York for confirmation of these observations. Epidermoid carcinoma of the cervix also was found, but whereas I felt that it was an early case, the hospital examiners felt that it was midway between the early and the middle stage of growth. Every competent person, from both the obstetric and the radium therapeutic point of view, agreed that one of the following two procedures is the treatment of choice: (1) simple cesarean section with radium treatment of the cervix, and x-ray treatment of the pelvis; (2) simple hysterectomy with radium treatment of the cervix and x-ray treatment of the pelvis. All but one agreed that to allow this woman to carry her pregnancy to completion would be definitely detrimental to her future welfare. The doctor taking exception to this agreement is a very competent man. I would therefore like to obtain your opinion in this matter. Should the woman be allowed to go to term under the circumstances?

M.D., New York.

Answer.—The pregnancy would have to continue at least ten weeks to secure a viable premature infant whose chances of survival would be about 50 per cent.

Every week during which active treatment of the carcinomatous lesion is postponed lessens the chances of a cure in the mother, who already has four living children, who will need her for years to come.

The best chance for increasing her life expectancy and possibly effecting a cure would be by complete radium and x-ray therapy. This cannot be carried out effectively as long as the pregnancy exists. The production of an abortion by means of x-rays is a questionable and certainly not an established procedure.

In most cases of cervical carcinoma there exists a superimposed infection. An abdominal hysterotomy or cesarean section would carry with it a relatively high mortality. A Porro operation or an incomplete hysterectomy with bilateral salpingo-oophorectomy should be the procedure of choice. Enough cervix could be left to permit subsequent treatment with radium—or such treatment could precede the operation by not more than twenty-four hours. As soon as the operative field is free from actual or potential infection, high voltage x-ray therapy should be instituted and carried to the limit of tolerance, preferably by the use of six portals with probably a total of about 1,500 roentgens to each portal. The amount of filtered radium should probably be somewhere between 3,500 and 4,000 hours.

FOREIGN BODY AND INFECTION OF TOOTH SOCKET

To the Editor:—About six or seven weeks ago annoying pains in the right elbow and knee that existed for some time prompted me to have my teeth roentgenographed, when the dentist found an abscessed second lower left molar, which he proceeded to extract. One root defied his efforts, and he referred me to an oral surgeon in the big city, who completed the extraction. The cavity showed evidence of good healing until two weeks later, when some "proud flesh" appeared in the socket, which was accompanied by some pus and bled easily. The face was slightly swollen. A visit to the oral surgeon resulted in a curetting and packing, with the prognosis of good healing. About two or three weeks later the condition recurred and to this date there is some red, hypertrophied tissue with some pus and bleeding. 1. What could be the cause of this delayed healing of a socket after an extraction? My general health is good, and the joint pains that occasioned the extraction have never recurred. 2. Is there a possibility of a malignant condition? 3. Do you recommend another curetting? What other treatment would you recommend? Please omit name.

M.D., Michigan.

Answer.—1. The usual cause for the symptoms described after the extraction of a tooth is the presence of some foreign body plus infection. The commonest foreign bodies are broken fragments of tooth root not removed in the extraction, and large or small fragments of necrosed bone broken from the supporting bone in the extraction. Rarely are other forms of foreign matter found. As long as the drainage is free, the relief of the systemic symptoms is to be expected.

2. There is virtually no possibility of a malignant condition.

3. The question of another curettement can be decided only by the appearance of the case. The first thing that should be done is to roentgenograph the area to determine the possible presence of foreign bodies. There may be portions of necrotic bone in a case in which the roentgenogram is otherwise negative. If so, the wound will not heal until the sequestrum is absorbed or exfoliated. Roentgen and violet ray treatment are sometimes helpful in these cases.

H. G. WELLS AND DIABETES

To the Editor:—Is H. G. Wells (British author) a victim of diabetes? Was he an organizer and is he now an officer in a lay organization of diabetic patients? Does he and do they use insulin?

F. Gregory Connell, M.D., Oshkosh, Wis.

Answer.—Mr. H. G. Wells would undoubtedly resent the implication that he is a "victim" of diabetes. More likely he glories in it and oft repeats to himself those lines of Henley, written some time ago:

> It matters not how straight the gate,
> How charged with punishments the scroll;
> I am the master of my fate,
> I am the captain of my soul.

As a matter of fact, he is president of the "Diabetic Association," an English society organized for the benefit of and service to persons with diabetes. The association issues a quarterly journal of high character in which any diabetic person would find reliable, useful and entertaining information. Full membership in the association is 1 pound 1 shilling and associate membership (confined to patients of the "hospital" class) 2 shillings 6 pence a year. All classes of members receive a copy of the *Diabetic Journal*. The address of the secretary, Miss Crerar, is 124 Baker Street, W. 1, London, England.

Insulin is the only medicine recommended by the Diabetic Association for the treatment of diabetes.

PROPHYLAXIS OF VENEREAL DISEASE IN FEMALE

To the Editor:—In a recent answer to a query you gave the prophylactic treatment against syphilis, but for the male only. What do you advise for the female? Also what prophylaxis do you advise the female to take against gonorrhea? Please omit name.

M.D., New York.

Answer.—Chemical prophylaxis, either for gonorrhea or for syphilis, is unsuitable for the female. The best method of protection from either one of these diseases for the female sex is mechanical prophylaxis; i. e., that the woman insist that her sexual partner wear a condom. While this mechanical protection does not eliminate infection with syphilis from lesions elsewhere than on the penis, and while it obviously does not protect against extragenital infection by kissing, it is nevertheless the only satisfactory prophylactic treatment for the

occasionally exposed female. Sonnenberg of Lodz has been experimenting with the bismuth prophylaxis of syphilis in prostitutes. By means of intramuscular injections of an insoluble bismuth salt, given every two weeks over an indefinite period, even a professional prostitute can be protected against syphilitic infection with a fair degree of certainty.

ALLERGIC RHINITIS

To the Editor:—A man, aged 36, for the last fifteen years has had sneezing, a running nose and reddened eyes every time he goes to the mountains or the seashore. While there he feels well but on arising in the morning the symptoms appear. He may feel slightly better in the evening but next morning the symptoms appear. He has had submucous resection. He has not had treatments for the nose. Because of the history I am doing the allergic diagnostic tests. Is this the correct procedure? At the present time I have found a two plus positive test for horsehair. Is this enough to cause the symptoms? While in the city, the patient feels well. The reason prompting this letter is whether the present procedure of diagnosis is in keeping with the history. The brother of the patient has hay fever. Please do not publish name.

M.D., New York.

ANSWER.—The case is apparently a typical one of allergic rhinitis. The history given does not suggest any clues as to the allergic causes. Skin tests constitute the correct procedure in such a case. If insufficient information is obtained from such tests, intracutaneous tests should be tried. A reaction to horsehair may be significant, especially if there are any horses in the vicinity or if there are any objects in the home in which the hair might be found (mattress, furniture).

HEXYLRESORCINOL IN ASCARIASIS

To the Editor:—About one year ago there appeared in THE JOURNAL an article on the subject of the treatment of roundworm infestation with hexylresorcinol. I should like to know whether this treatment is still considered good and, if so, where these capsules may be obtained. Will you please send all the information available on the treatment of roundworm infestation.

M.D., Pennsylvania.

ANSWER.—Hexylresorcinol is considered by some authorities the treatment of choice in ascariasis, as this drug is much less toxic than either santonin or oil of chenopodium. The dosage is 1 Gm. for adults, and from 0.2 to 0.8 Gm. for children 10 years of age. The drug is administered in hard gelatin capsules of 0.2 Gm. each on an empty stomach in the morning followed by a saline cathartic and abstention from food for five hours. Sanitary disposal of feces to prevent ground pollution with Ascaris eggs is the requirement of prophylaxis.

CESSATION OF FERTILITY IN MENOPAUSE

To the Editor:—Is there any test available to the general practitioner whereby he can determine when, in the period of the menopause, a woman is no longer capable of conception? A patient recently stated that his wife, now 42 years of age, had menstruated regularly until about two years ago; then there were one or two scanty menses and since then no menses have occurred. He wished to know whether precautions to avoid pregnancy were still necessary. Hence my inquiry.

M.D., Pennsylvania.

ANSWER.—There is no test available for determination of cessation of fertility at the menopause. Testing for the estrogenic hormone is of no clinical value in this type of case. There is a current impression that women approaching or in the menopause are peculiarly susceptible to conception. Such is not the case. This view has evidently been accepted because women who become pregnant late in their childbearing period are much talked about by their friends and neighbors.

DIAGNOSIS OF DIPHTHERIA

To the Editor:—Is it possible to make a definite diagnosis of diphtheria from a smear alone? Can the laboratory man be certain without a culture? Will diphtheroid and diphtheria organisms have the identical staining appearance and characteristics on the uncultured smear stain?

E. H. COACHMAN, M.D., Muskogee, Okla.

ANSWER.—It is not possible to make a definite diagnosis of diphtheria from a smear alone or even from a culture. It is always necessary to consider the clinical symptoms. Diphtheria organisms may be found in smears or cultures taken from the throat or nose of a diphtheria carrier. In cases of active diphtheria, smears taken early might be negative. Diphtheroid and diphtheria organisms cannot be differentiated in an uncultured smear stain in many instances. The diagnosis of diphtheria should be based on the clinical observations and confirmed by nose and throat culture. This does not mean, however, that the antitoxin should be withheld in suspected cases until clinical symptoms are fully developed.

HAZARDS OF MOUTH GAG WITH ELECTRIC LIGHT

To the Editor:—Please advise me if the Cameron mouth gag with electric light is safe to use with ether anesthesia in the removal of tonsils. This instrument is four or five years old.

JOHN P. SEARLS, M.D., Malakoff, Texas.

ANSWER.—So far as we are aware, no accidents have happened with the Cameron mouth gag equipped with an electric light and used with ether anesthesia for tonsillectomy. So long as all connections are secure so that no short circuit or sparking can occur, there seems no reason why this sort of mouth gag should be a menace. We know that it has been used by some operators for some time and believe that with the precautions mentioned its use should be safe.

FLUID IN CHEST

To the Editor:—A man, aged 74, about four weeks ago developed a cough with free fluid in the left side of the chest. His temperature has been normal for the past three weeks; x-ray examination reveals a moderate amount of free fluid present. This fluid seems to be absorbing very slowly. Would diathermy to the chest help? I hesitate to aspirate because of the patient's age, and complications set in from aspiration. His temperature has been normal and he feels well except for occasional coughing. He feels better with the chest strapped. Any suggestion besides the use of diathermy will be appreciated.

JOSEPH A. SILEO, M.D., Brooklyn.

ANSWER.—If the temperature is normal, the fluid is best left alone. At that age there may be some circulatory element, and a mild diuretic, such as some form of theobromine, might be tried. Diathermy is not indicated.

DURATION OF POTENCY IN MALES

To the Editor:—At about what age does the average male in good health cease to have live active spermatozoa? When does he become impotent? Please omit name.

M.D., Mississippi.

ANSWER.—The fact that there are authentic cases of men over 90 who have impregnated women shows that potency and spermatic function can persist to very old age. Even in men who have ceased to cohabit on account of their age, live spermatozoa have been found at necropsy in the seminal vesicles. The average normal man ought to be able to indulge in coitus between 65 and 70 years of age. In the normal individual, live active spermatozoa should persist at least as long as ejaculation is possible.

"ICTERUS DURING THE TREATMENT OF SYPHILIS"

To the Editor:—In reading Queries and Minor Notes in THE JOURNAL, January 2, page 67, I noticed that the answer to the query entitled "Icterus During the Treatment for Syphilis" recommended the cessation of arsphenamine therapy during icterus. I should like to call attention to the article by Jankelson and me, entitled "Treatment of Arsenical Hepatitis with Sodium Dehydrocholate" (*Arch. Dermat. & Syph.* **32**: 422 [Sept.] 1935). In a case of early active syphilis, in which vigorous antisyphilitic treatment is indicated, I have shown that it is possible to continue arsenical therapy, even in the presence of jaundice. If there is bile in the stools, and this is the only important factor to consider, each dose of the arsphenamine may be mixed with 10 cc. of 5 per cent solution of decholin sodium and slowly administered intravenously. Just before each injection blood is withdrawn in a dry, sterile syringe for a quantitative van den Bergh determination. If the figures of this determination show a progressive decrease or if they do not increase, the treatments are continued. Eventually the icterus clears up and treatment may be then continued, either with or without the decholin sodium, cautiously.

If, however, there is no bile in the stools, this treatment is not indicated. The protective effect of the decholin sodium (sodium dehydrocholate) on the liver is entirely adequate for the dose of arsphenamine that is being administered, provided there is some flow of bile out from the liver into the intestinal tract. In such a case there is also a curative effect on the damage already done, because of the washing out effect which the choleresis produced by this drug establishes. Sodium thiosulfate is a very poor second under these circumstances.

BERNARD APPEL, M.D., Boston.

HEIGHT, WEIGHT, AGE RELATIONSHIP IN CHILDREN

To the Editor:—In Queries and Minor Notes in THE JOURNAL, January 16, page 227, a physician asks for a height, weight, age chart, or a method of calculation. He might be interested in an article by Dr. David Willoughby of Los Angeles, who wrote an article entitled "An Anthropometric Method for Arriving at the Optimal Proportions of the Body in an Adult Individual," published in the Research Quarterly of the American Physical Education Association, volume 3, No. 1, 1932.

C. H. WARFIELD, M.D., Wichita, Kan.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, February 20, page 666.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II*, May 10-12, June 21-23, and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Written examination for Group B applicants* will be held in various cities throughout the country on April 17. *Oral examinations for Group A and B applicants* will be held in Philadelphia, June 7-8. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written* examination will be held simultaneously in different centers of the United States and Canada in March. *Practical* examination will be given in St. Louis in April and at Philadelphia in June. Chairman, Dr. Walter L. Bierring, 406 Sixth Ave., Rm. 1210, Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written examination for Group B applicants* will be held in various cities throughout the United States and Canada, March 6. *Practical, oral and clinical examinations for Group A and B applicants* will be held at Atlantic City, N. J., June 7-8. *Applications must be received at least sixty days prior to the examination dates.* Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 7. *All applications and case reports, in duplicate, must be filed not later than April 7.* Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Philadelphia, June 12. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Berry, 1300 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Chicago, March 26-27. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit, Michigan.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 6, Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Philadelphia, June. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, N. J., June 4-6. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF UROLOGY: *Oral examination.* Minneapolis, June 25-26. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

New York June Examination

Mr. Herbert J. Hamilton, chief, Professional Examinations Bureau, reports the written examination held by the New York State Board of Medical Examiners at Albany, Buffalo, New York and Syracuse, June 22-25, 1936. The examination covered 9 subjects and included 10 questions. An average of 75 per cent was required to pass. Six hundred and sixty-six candidates were examined, 539 of whom passed and 127 failed. The following schools were represented:

School	PASSED Year Grad.	Number Passed
University of Arkansas School of Medicine	(1932), (1934)	2
Stanford University School of Medicine	(1931)	1
University of Colorado School of Medicine	(1936)	1
George Washington University School of Medicine	(1932), (1934), (1935, 3), (1936)	6
Georgetown University School of Medicine	(1933), (1934)	2
Howard University College of Medicine	(1935, 2)	2
Loyola University School of Medicine	(1935), (1936, 2)	3
Rush Medical College	(1930), (1933), (1935), (1936, 4)	7
School of Medicine of the Division of the Biological Sciences	(1935), (1936)	2
Louisiana State University Medical Center	(1936)*	1
Tulane University of Louisiana School of Medicine	(1936)	1
University of Maryland School of Medicine and College of Physicians and Surgeons	(1936)	1
Harvard University Medical School	(1934), (1935), (1936, 2)	4
Tufts College Medical School	(1935)	1
Univ. of Michigan Medical School	(1933), (1935), (1936, 2)	4
St. Louis University School of Medicine	(1935, 2), (1936, 2)	5
Washington Univ. School of Medicine	(1934, 2), (1936, 2)	4
Creighton University School of Medicine	(1935), (1936, 2)	3
Albany Medical College	(1935), (1936, 20)	21
Columbia University College of Physicians and Surgeons	(1933, 2), (1934), (1935), (1936, 55)	59
Cornell Univ. Medical College	(1934, 2), (1935, 2), (1936, 28)	32
Long Island College of Med.	(1934), (1935, 2), (1936, 66)	69
New York Homeopathic Medical College and Flower Hospital	(1935, 3)	3
New York Medical College and Flower Hospital	(1936, 6)	6
New York University, University and Bellevue Hospital Medical College	(1934, 2)	2
New York Univ. College of Medicine	(1935, 7), (1936,81)	88
Syracuse University College of Medicine	(1936, 31)	31
University of Buffalo School of Medicine	(1933), (1934), (1935, 2), (1936, 38)	42
Univ. of Rochester School of Med.	(1932), (1935, 4), (1936, 25)	30
University of Oklahoma School of Medicine	(1935)	1
University of Oregon Medical School	(1931, 2)	2
Hahnemann Medical College and Hosp. of Philadelphia	(1933)	1
Jefferson Medical College of Philadelphia	(1934), (1936, 4)	5
Temple University School of Medicine	(1931), (1935)	2
Univ. of Pennsylvania School of Medicine	(1933), (1934, 2)	3
Woman's Medical College of Pennsylvania	(1933), (1934), (1935), (1936, 2)	5
Baylor University College of Medicine	(1936)	1
Medical College of Virginia	(1934), (1936)	2
Marquette University School of Medicine	(1935)	1
University of Wisconsin Medical School	(1935)	1
University of Alberta Faculty of Medicine	(1932)	1
Dalhousie University Faculty of Medicine	(1928)	1
Queen's University Faculty of Medicine	(1935), (1936)	2
University of Toronto Faculty of Medicine	(1934)	1
University of Western Ontario Medical School	(1936)	1
Laval University Faculty of Medicine	(1936, 2)	2
McGill Univ. Faculty of Medicine	(1929), (1933), (1936, 3)	5
University of Montreal Faculty of Medicine	(1936)	1
Medizinische Fakultät der Universität Wien	(1935, 7),† (1936, 3)†	10
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England	(1935, 3), (1935),† (1936)†	5
Univ. of Durham College of Medicine, England	(1935), (1935)†	2
University of London Faculty of Medicine	(1935)†	1
University of Sheffield Faculty of Medicine, England	(1933)	1
Université de Paris Faculté de Médecine	(1935), (1935, 3),† (1936)†	5
Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg	(1936)†	1
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin	(1934),† (1935)†	2
Johann Wolfgang Goethe-Universität Medizinische Fakultät, Frankfurt-am-Main	(1933)†	1
Ludwig-Maximilians-Universität Medizinische Fakultät, München	(1934)	1
Medizinische Akademie Düsseldorf	(1934)†	1
Universität Heidelberg Medizinische Fakultät	(1934)†	1
National University of Athens School of Medicine	(1922)	1
Regia Università degli Studi di Perugia. Facoltà di Medicina e Chirurgia	(1935)†	1
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia	(1933), (1934)†	2
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1934)†	1
Uniwersytet Jana Kazimierza Wydział Lekarski, Lwów	(1931)†	1
Licentiate of the Royal College of Physicians and of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons, Glasgow	(1935, 2), (1935, 4), (1936, 4)	10
University of Aberdeen Faculty of Medicine	(1934)	1
University of Glasgow Medical Faculty	(1935)	1
Universität Basel Medizinische Fakultät	(1935), (1936)†	2
Universität Bern Medizinische Fakultät	(1934),† (1935), (1935, 2)†	4
Universität Zürich Medizinische Fakultät	(1934), (1935), (1935, 5), (1936)†	8
Université de Genève Faculté de Médecine	(1934),† (1935, 3)†	4
Université de Lausanne Faculté de Médecine	(1934)†	1

School	FAILED Year Grad.	Number Failed
Georgetown Univ. School of Medicine	(1934), (1935), (1936)	3
Howard Univ. College of Medicine	(1931), (1934), (1935)	3
Northwestern University Medical School	(1929), (1933)	2
University of Kansas School of Medicine	(1935)	1
Johns Hopkins University School of Medicine	(1935)	1
Harvard University Medical School	(1935)	1
Tufts College Medical School	(1930), (1933)	2
University of Michigan Medical School	(1934)	1
St. Louis University School of Medicine	(1935, 2), (1936)	3
Creighton University School of Medicine	(1936)	1
Albany Medical College	(1935), (1936)	2
Columbia Univ. College of Phys. and Surgeons	(1934), (1936)	2
Cornell University Medical College	(1936, 2)	2
Long Island College of Medicine	(1936, 5)	5
New York Homeopathic Medical College and Flower Hospital	(1914), (1935, 2)	3
New York Medical College and Flower Hospital	(1936, 3)	3
New York University, University and Bellevue Hospital Medical College	(1933)	1
New York University College of Medicine	(1935), (1936, 2)	3
Syracuse University College of Medicine	(1935), (1936, 2)	6
University of Buffalo School of Medicine	(1934), (1936, 3)	4
University of Rochester School of Medicine	(1932), (1936)	3
Jefferson Medical College of Philadelphia	(1934)	1
Medical College of the State of South Carolina	(1936)	1
University of Vermont College of Medicine	(1935)	1
Medical College of Virginia	(1935, 2)	2
Marquette University School of Medicine	(1936)	1
Queen's University Faculty of Medicine	(1930), (1932)	2
McGill University Faculty of Medicine	(1935)	1
Medizinische Fakultät der Universität Wien	(1921), (1933, 3),† (1935, 3),† (1936, 2)†	9
Deutsche Universität Medizinische Fakultät Prag	(1934)†	1
Masarykova Universita Fakulta Lékarská, Brno	(1928)	1
Universita Karlova Fakulta Lékarská, Praha	(1935)†	1
Licentiate in Medicine, Surgery and Midwifery of the Apothecaries' Society of London	(1935)	1
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England	(1936, 2)†	2
Université de Paris Faculté de Médecine	(1936)†	1
Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg	(1930)	1
Eberhard-Karls-Universität Medizinische Fakultät, Tübingen	(1936)†	1
Friedrich-Alexanders-Universität Medizinische Fakultät, Erlangen	(1930)	1
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin	(1933),† (1934),† (1935),† (1936)†	4
Hamburgische Universität Medizinische Fakultät	(1935, 2)†	2
Johann Wolfgang Goethe-Universität Medizinische Fakultät, Frankfurt-am-Main	(1933)	1
Ludwig-Maximilians-Universität Medizinische Fakultät, München	(1936)†	1
Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau	(1934)†	1

Thüringische Landesuniversität Medizinische Fakultät, Jena.....(1928)†	1
Universität Leipzig Medizinische Fakultät...(1927),† (1934)†	2
Universität Rostock Medizinische Fakultät.....(1935)†	1
Regia Università degli Studi di Palermo. Facoltà di Medicina e Chirurgia.....(1935)†	1
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia.....(1934, 4),† (1935)†	5
Regia Università di Napoli Facoltà di Medicina e Chirurgia.....(1932),† (1933),† (1936)†	3
University of St. Vladimira Faculty of Medicine, Kiev..(1913)	1
Licentiate of the Royal College of Physicians, of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons, Glasgow..(1936)	1
University of Edinburgh Faculty of Medicine.....(1933)	1
University of St. Andrews Conjoint Medical School, Scotland.....(1935), (1935)†	2
Universität Basel Medizinische Fakultät (1934), (1935, 5),† (1936)†	5
Universität Bern Medizinische Fakultät (1934), (1935, 5), (1935, 2)†	8
Universität Zürich Medizinische Fakultät....(1935),† (1936)†	2
Université de Genève Faculté de Médecine.....(1935, 2)†	2
Université de Lausanne Faculté de Médecine.....(1935, 3)†	3
Nongraduate	1

* This applicant has received the M.B. degree and will receive the M.D. on completion of internship.
† Verification of graduation in process.

Book Notices

Food, Health and Income: Report on a Survey of Adequacy of Diet in Relation to Income. By John Boyd Orr. Boards. Price, $1. Pp. 72. New York & London: Macmillan & Co., Limited, 1936.

This book reports the results of a large scale investigation of the nutrition of the people in the British Isles, which was carried out by the staff of Rowett Institute in cooperation with the Market Supply Committee. It attacks the problem of nutrition from a more fundamental and comprehensive standpoint than has heretofore been done, for it considers the food supply of the country in relation to the nutrition and health of the people and to their incomes. The total food supply of the country was estimated from agricultural statistics and records of imports, exports and manufacturing output. The nature of dietaries for six different income levels was obtained through analysis of 1,200 family budgets secured in various sections of the country. The adequacy of the diets was determined by comparison of their yield of dietary essentials with Stiebling's standards (U. S. Bureau of Home Economics, Diets at Four Levels of Nutritive Value and Cost). The health and nutritional status was judged by the growth of children in the different income levels, the incidence of diseases in which nutrition plays a part, and the results obtained by supplementary feeding of children of the lower income groups.

The outcome is such as to raise important economic, political and health problems. The total national weekly income was found to average about 30 shillings a head, of which 9 shillings, or about one third, goes for food. In the three lower income groups (under 20 shillings) the food money is less (4, 6 and 8 shillings) but its percentage of the income is higher (from 45 to 60 per cent). The consumption of particular foods shows a striking relation to income. Expenditures for fresh milk, butter, fruit, fresh vegetables, eggs, fish and meat—the foods that are depended on to furnish the protective minerals, vitamins and high quality protein—rise sharply in the three upper income groups, while those for condensed milk and margarine decrease in the same order. The expenditures for cereals, fats and potatoes are similar for all incomes. When the diets obtained in the family budgets are analyzed, the degree of adequacy is also seen to rise with the income. The average diet of the poorest group, which includes four and a half million people, is deficient in every dietary constituent; the diet of the second group comprising nine million people is deficient in all the vitamins and minerals; and though the diets of groups 3 to 5 show progressive improvement, all are lacking in some of the dietary essentials. Only group 6, comprising only 10 per cent of the population, with an average income of 45 shillings per head and a food expenditure of 14 shillings, has a diet that is completely adequate.

The physical status is what would logically be expected from the food consumption studies. Growth data on nearly 68,000 children of different socio-economic levels show striking superiority in height of children in the more favored groups; a difference of 2⅜ inches at 13 years and of 3½ inches at 17 years. The incidence of dietary diseases, such as rickets, anemia, dental caries and tuberculosis, is—so far as can be determined from available evidence—also greater at the lower economic levels. That these deficiencies are due to dietary inadequacies rather than to hereditary limitations has been demonstrated by a number of supplementary feeding projects. Such studies of hundreds of children in various parts of the country have shown marked improvement in growth for the supplemented groups as compared with the controls.

Considering these observations in relation to one another, the author concludes that the standard which should be held for the country is that of optimal, not minimal, requirements and he tentatively assumes that this level is the one reached by the higher income groups whose diets were completely adequate. To attain this ideal for the entire country "would involve increases in consumption of a number of the more expensive foodstuffs, viz., milk, eggs, butter, fruit, vegetables, and meat, varying from 12 to 25 per cent."

It is pointed out that the economic, political and health problems involved are not within the sphere of any single department of state and that their solution would involve concerted and cooperative action on the part of all. The conclusions in the report are already being given serious consideration by the departments concerned and "the prominence given to this new social problem at the last assembly of the League of Nations shows that it is occupying the attention of all civilized countries."

Gesetz zur Verhütung erbkranken Nachwuchses vom 14. Juli 1933 nebst Ausführungsverordnungen. Bearbeitet und erläutert von Dr. med. Arthur Gütt, Ministerialdirektor im Reichsministerium des Innern, Dr. med. Ernst Rüdin, o. ö. Professor für Psychiatrie an der Universität und Direktor des Kaiser Wilhelm-Instituts für Genealogie und Demographie der Deutschen Forschungsanstalt für Psychiatrie in München, und Dr. jur. Falk Ruttke, Geschäftsführender Direktor des Reichsausschusses für Volksgesundheitsdienst beim Reichsministerium des Innern. Mit Beiträgen: Die Eingriffe zur Unfruchtbarmachung des Mannes und zur Entmannung. Von Geheimrat Prof. Dr. med. Erich Lexer. Die Eingriffe zur Unfruchtbarmachung der Frau. Von Prof. Dr. med. Heinrich Eymer. Second edition. Cloth. Price, 9 marks. Pp. 418, with 20 illustrations. Munich: J. F. Lehmanns Verlag, 1936.

This book in somewhat more abbreviated form was reviewed in THE JOURNAL Sept. 29, 1934. In the second edition it has been enlarged and revised. Eymer is substituted for Döderlein as author of the technical aspects of sterilization in women. Otherwise the authorship appears to be unchanged. The greater part of the revision since the first edition is in the introductory portion, dealing with the genetics of the diseases for which sterilization has been declared mandatory in Germany. There is also a much greater emphasis laid on the studies outside Germany and the development of sterilization laws in other countries. Thus, the laws relative to sterilization both of the United States and of Canada are discussed. No apparent change has been made in the laws as they exist in Germany since the first edition. The book contains a satisfactory glossary, and a bibliography that should be useful to any one interested in eugenics. Although national mandatory sterilization seems to be not yet wholly justified by scientific knowledge, there is no choice but to observe closely the results of the German experiences. Even if nothing else is accomplished, the results should aid in the formulation of eugenic policies elsewhere. It is to be hoped that the next edition will include some preliminary criticism of the policies so far pursued.

A Study in Pre-Eclampsia and Eclampsia with Special Reference to Protein Stabilization Treatment. Compiled by Boyd Harden, Instructor in Obstetrics. From the Department of Obstetrics, School of Medicine, University of Pittsburgh, and the Elizabeth Steel Magee Hospital. In Affiliation with the Departments of Medicine, Chemistry, Pathology, Ophthalmology, Otology, Laryngology and Rhinology of the School of Medicine. Paper. Pp. 99, with illustrations. Pittsburgh: University of Pittsburgh, 1936.

The author, in a small book of which the bibliography fills twenty-two pages, has attempted to present certain of the chemical and metabolic changes which occur in normal pregnancy and eclampsia. The style is supposed to be terse but becomes choppy and quite often difficult to read. Little space is devoted to hemoglobin, and here the author uses percentages but does not give the standard to which the percentage refers. He also ascribes significance to changes in hemoglobin of from 6 to 10 per cent. There seems to be no definite system to the arrangement of subject matter. For example, one finds data for normal pregnancy interspersed in the chapter in which the author is presenting his views on the stabilization of eclampsia.

The purpose of the book seems to be to present the results of treatment with so-called protein stabilization. This means that sufficient protein is given for the metabolic needs of the mother, the fetus, and whatever protein is lost in the urine. Improvement in patients with preeclampsia and the fact that they have had no patients with eclampsia who were treated with their protein stabilization methods leads him to ascribe the results to this treatment. However, it is well known that most large clinics, with varied types of treatment, many of them almost starvation, have too few cases of eclampsia for study or demonstration to students.

Die Wege und Ergebnisse chemischer Krebsforschung. Von Privatdozent Dr. R. Willheim, Assistent am Institut für medizinische Chemie der Universität Wien, und Dr. K. Stern. Paper. Price, 9 marks. Pp. 473. Vienna: Aesculap-Verlag, Gesellschaft m. b. H., 1936.

This is an elaborate and comprehensive book dealing with all phases of the relationship of cancer to chemistry in the broadest meaning of both words. It deals with the chemical aspects of cancer etiology, diagnosis and therapy. The broad scope of the book can be seen from the subjects of its chapters: inorganic chemistry, organic chemistry, physical chemistry, ferments, nutrition and vitamins, tumor metabolism, endocrine glands and hormones, immunology, and biologic and chemical tumor diagnosis. Although one might believe it impossible to cover this enormous field adequately in such a comparatively short presentation, this has been accomplished not only by an enumeration of the facts but always with an effort to give a critical evaluation of these facts. Naturally, the value of the chapters is not equal, depending on the actual state of our knowledge as well as on the special interest and experience of the authors. In spite of this, one must appreciate that there is always the tendency not to overemphasize particular sections because of a personal interest but to give every phase of the subject its merited importance. Since in almost all these fields definite conclusions are lacking today and the experimental results as well as the conclusions of different authors are in many instances completely contradictory, naturally this book could not become and was not intended to become a textbook reaching definite conclusions and doctrines. It affords, however, an extremely valuable basis for any one interested in one of these problems, since it gives a comprehensive and reliable summary of what is known today and what is not known. The critical and objective discussion, together with the extensive bibliography, makes the book extremely valuable as a reference work which will be consulted by every one in the future who might need reliable and complete information as to the objective status of these problems without toilsome search in the scattered literature.

Lecciones de patología médica. Tomo II. Por el Dr. C. Jiménez Díaz. Half-leather. Pp. 1,405, with 297 illustrations. Barcelona: Editorial Científico Médica, 1936.

It is hard to review a book of this character because of the rather unusual form in which it has been compiled. As explained in the title page, these are a professor's lectures to his class as taken down by a stenographer, lacking in other words the final touches and polish which any work of such technical nature requires. Much of the criticism that could be aimed at this bulky volume probably arises from this cause. There is a lot of valuable, painstaking and perhaps too minute and often unmethodical pathologic information in these pages, especially on the kidneys (548 pages), but also on the nervous system and a number of its diseases, and various lung, heart, gallbladder and bowel conditions, including appendicitis and colitis. Much of it, however, seems rather incoordinated and unnecessarily prolix. Too much space appears also to be taken by the presentation of patients and the discussion of symptoms. Although the characteristics of the audience may explain this, it often deflects the discussion from its textbook nature into a series of clinical reports without general conclusions as to the disease dealt with. A number of original illustrations bring out salient points. Various authors have contributed sections on diagnosis and even treatment, which is a rather unusual feature in a textbook on pathology. On some points the author does not seem to have kept up with the latest developments; for instance, in his statement (p. 1242) that sprue is a disease of the tropics and especially of Puerto Rico. The lack of an index is almost inexcusable in a book of this size and scope.

Paget's Disease of the Nipple and Its Relation to Surface Cancers and Precancerous States in General. By Keith Inglis, M.D., Ch.M., Professor of Pathology in the University of Sydney. Cloth. Price, $13. Pp. 235, with 237 illustrations. New York & London: Oxford University Press, 1936.

This book is a valuable archive of detailed reports of cases of Paget's disease together with excellent and beautiful gross pathologic and histologic illustrations. On the basis of his carefully examined material and a critical consideration of the literature, the author believes that Paget's disease is a special variety of cancer of the mammary ducts, beginning at the junction of the lactiferous duct with the epidermis and growing downward in the epithelium lining the duct wall of the acini as well as outward in the epidermis of the nipple. The most important difference between this disease and diseases that might produce similar changes in the squamous cell epithelium (as for instance Bowen's disease, Paget's disease in other parts of the body and precancerous lesions in the squamous cell epithelium of the mucous membrane of the upper respiratory tract or of the cervix) is that in these conditions the malignant cells originate in situ whereas in Paget's disease the author considers that the cancerous cells have already invaded the epithelium of the overlying skin.

Apicius: Cookery and Dining in Imperial Rome. A Bibliography, Critical Review and Translation of the Ancient Book Known as Apicius de re Coquinaria, now for the First Time Rendered into English. By Joseph Dommers Vehling. With a Dictionary of Technical Terms, Many Notes, Facsimiles of Originals, and Views and Sketches of Ancient Culinary Objects Made by the Author. Introduction by Prof. Frederick Starr. Boards. Price, $7.50. Pp. 301, with 49 illustrations. Chicago: Walter M. Hill, 1936.

This cookery book, dating back to imperial Rome, contains some 500 recipes in cookery with a sprinkling of medical formulas and hints as to hygiene. The author of the volume is unknown, and it is presumably a repetition of Greek knowledge compiled by an unknown Roman cook. Especially interesting are the equivalents of our modern cocktails, laxative wines, the salts, vegetable dinners, and the various items which, because of symbolism, were supposed to have special value in relationship to body function. Special interest attaches to the product Garum, which was a fish oil made from the livers of fish, exposed to the sun, fermented and preserved. This product in ancient Rome was renowned for its medicinal properties.

El tratamiento médico-quirúrgico de las supuraciones pulmonares. Por Hernán Oyanguren M. Prólogo del Dr. Gonzalo Corbalan T. Paper. Pp. 94, with 45 illustrations. Santiago de Chile: Imprenta "Leblanc," 1936.

In this short monograph Dr. Hernán Oyanguren M. reviews his experience in the treatment of pulmonary infections (lung abscess, bronchiectasis, and so on). His opinions follow, in general, those expressed in almost every modern textbook on the subject and in most of the literature of today. The monograph might well be used as a chapter in such a work. Although written in Spanish, it is easily read by any one who has a slight knowledge of that language, and the summary, which is translated into English, makes it available for American physicians. The author demonstrates that even a comparatively small number of cases can be used as a basis of an excellent piece of work, provided sufficient care is taken in their study.

The Physiology of the Elephant. By Francis G. Benedict, Director, Nutrition Laboratory, Carnegie Institution of Washington. Publication No. 474. Paper. Pp. 302, with 13 illustrations. Washington, D. C.: Carnegie Institution of Washington, 1936.

By means of an apparatus developed particularly for the purpose, the author was able to make a study of the respiratory exchange in the elephant. This original investigation is associated with the important facts regarding the physiology of the elephant, including the relationship between the weight of the new-born elephant and that of its mother, necropsies, basal metabolism and similar factors. It is interesting to know that the average length of life of an elephant is probably about that of man. Many elephants sleep standing up. The elephant matures sexually at about 10 years of age and its period of gestation is about twenty months. A new-born elephant weighs about 200 pounds. A full-grown elephant drinks about 50 gallons of water a day, preferably warm. The total basal metabolism of the average elephant is 4,900 calories for twenty-four hours. A large elephant produces about as much heat as thirty men.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Rubber Drainage Tube Left in Patient; Accrual of Right of Action.—The defendant, a physician, performed an abdominal operation on Mrs. Huysman, Jan. 3, 1931. A rubber drainage tube was accidentally left in the patient. It was removed by the defendant, Sept. 26, 1932. Mrs. Huysman and her husband filed suit, Jan. 7, 1933, attributing her postoperative suffering to the defendant's negligence in failing sooner to remove the tube. The trial court held that the plaintiff's cause of action arose when the defendant failed to remove the drainage tube after it had served its purpose, namely, Jan. 9, 1931, and that since in California a malpractice suit must be instituted within one year after the cause of action arises, the plaintiffs' suit was barred by the expiration of that time limit. The district court concurred in the judgment of the trial court (*Huysman* v. *Kirsch* (Calif.), 47 P. (2d) 332; abstr. THE JOURNAL, Feb. 1, 1936, p. 410), and the plaintiffs appealed to the Supreme Court of California.

It is settled in California, said the Supreme Court, that an action by a patient against a physician, for injuries resulting from negligent or unskilful treatment, sounds in tort and is barred unless suit is instituted within one year after the date of the injury. When did the cause of action arise in the present case? In *Sly* v. *Van Lengen*, 198 N. Y. S. 608, a sponge left in a patient was not removed until two and one-half years thereafter. It was held that the patient's cause of action accrued on the removal of the sponge. In *Gillette* v. *Tucker*, 67 Ohio St. 106, 65 N. E. 865, another sponge case, the court said:

> The facts in the case at bar show a continuous obligation upon the plaintiff in error so long as the relation or employment continued, and each day's failure to remove the sponge was a fresh breach of the contract implied by the law. The removal of the sponge was a part of the operation, and in this respect the surgeon left the operation uncompleted.

The foregoing authorities, said the Supreme Court of California, announce a just and equitable rule and the present case is much stronger than either of the cases cited. In each of those cases the negligent act consisted in not removing the sponge at the time of the operation. The negligence there occurred in the performance of the operation. In the present case the operation, up to the closing of the wound and the leaving of the drainage tube therein, was entirely proper. The negligence occurred thereafter, when the surgeon neglected to remove the tube after it had served its purpose. The negligence continued during the entire time the tube was left in the body of the patient and ended only when it was removed. The plaintiffs' cause of action, therefore, accrued at the time the tube was removed.

There is another principle, said the Supreme Court, on which it might be held that the plaintiffs' cause of action is not barred. An operation like that performed on Mrs. Huysman is not complete until the wound has been closed and all appliances used in the operation have been removed. In *Barnett's Administrator* v. *Brand*, 165 Ky. 616, 177 S. W. 461, the court said:

> In performing an operation, it is the duty of a surgeon to exercise reasonable care and skill. The operation begins when the incision is made and ends when the opening has been closed in the proper way, after all the appliances necessary to a successful operation have been removed from the body. Throughout the operation the law imposes on the surgeon the duty of exercising such care and skill. The removal of the sponges or pads is a part of the operation, and an operation cannot be said to be concluded until such removal takes place.

If the principle thus announced, said the Supreme Court, is applied to the present case, the plaintiffs' cause of action is not barred. Furthermore, it has been held that the statute of limitations should not run against an injured employee's right to compensation during the time the employee was in ignorance of the cause of his disability and could not with reasonable care and diligence ascertain such cause. *Marsh* v. *Industrial Accident Commission*, 217 Calif. 338, 18 P. (2d) 933. If the principle thus laid down is applied to the present case, said the court, the same result will follow, since the plaintiffs had no knowledge of the presence of the drainage tube in the body of Mrs. Huysman until it was removed Sept. 26, 1932. During all this time she was under the exclusive care of the defendant, and both Mrs. Huysman and her husband relied solely on him for information as to her physical condition and as to her failure to regain her health.

For the reasons stated, the judgment of the superior court for the defendant was reversed.—*Huysman v. Kirsch (Calif.), 57 P. (2d) 908.*

Privileged Communications: Nurses Not Entitled to Privilege.—Under the common law, communications between a patient and a physician were not privileged. An Indiana statute, however, provides that the following persons, among others, shall not be competent witnesses:

> Physicians, as to matter communicated to them, as such, by patients, in the course of their professional business, or advice given in such cases.

This statute, said the appellate court of Indiana, in banc, is in derogation of the common law and must be strictly construed. The statute refers specifically to "physicians." The privilege does not extend to third persons who are present and overhear a conversation, unless such third person was necessary for the purpose of transmitting the information to the physician. The Supreme Court of Indiana, in *William Laurie Co.* v. *McCullough*, 174 Ind. 477, 90 N. E. 1014, 92 N. E. 337, Ann. Cas. 1913A, 49, defined the term "physician" as follows:

> "The word 'physician' is defined to mean a person who has received the degree of doctor of medicine from an incorporated institution; one lawfully engaged in the practice of medicine." 30 Cyc. 1544.

A nurse, said the appellate court, certainly does not come within this definition and any observation of her own could not be a privileged communication within the meaning of the Indiana statute. To the argument that public policy demands that nurses be included within the privileged class, the court replied that this was a matter solely for the legislature, and that the statute could be extended to cover nurses only by it and not by judicial construction.—*General Accident, Fire & Life Assur. Co., Limited, of Scotland v. Tibbs (Ind.), 2 N. E. (2d) 229.*

Compensation of Physicians: Liability of Railroad Company for Medical Services Rendered at Request of Claim Agent.—A boy was severely injured while attempting to board a train of the New Orleans, Texas and Mexico Railway Company. The local agent secured an ambulance and had the boy sent to the Eunice Clinic and Hospital, Inc. The serious nature of the injury necessitated an emergency operation and the boy's leg was amputated on the same day of the accident. The following day, a claim agent of the railroad company whose duty it was to investigate accidents came to the hospital to see the boy. In response to a question propounded by the president of the hospital corporation as to who would be responsible for the expenses, the claim agent replied, according to the testimony of the president: "We will take care of the expenses of this case." The claim agent subsequently denied making this statement. Following a refusal of the company to pay expenses, the plaintiff hospital instituted suit against the defendant trustees of the railway company. Judgment was rendered for the plaintiff, and the defendants appealed to the court of appeal of Louisiana, first circuit.

There can be no serious question, said the court of appeal, of the authority of the claim agent to bind the railway company. He was vested with full authority to handle accident cases of this kind. While he denied having stated that the company would take care of the expenses, other facts and circumstances in the record indicated to the satisfaction of the court that he did make such a statement. The defendants objected to the introduction of evidence to show a promise on the part of the railway company to pay the bill on the ground that it was an effort to prove by parol testimony a promise to pay the debt of a third person—the debt being that of the boy's parents—contrary to article 2278 of the Civil Code. This was

not, the court pointed out, a collateral and conditional promise to pay the debt of the boy's parents, but a primary and direct obligation incurred by the railroad company through the promise of a duly authorized representative. While the acts and promises of the local agent in bringing the boy to the hospital and asking that he be taken care of might not in itself be sufficient to bind the company, yet his acts were ratified by the payment of the ambulance bill incurred in bringing the boy to the hospital and by the subsequent promise by the claim agent to pay the bill. There was no similarity, in the opinion of the court, between the present case and those cited by counsel for the defendants where a person present at an accident calls for medical assistance for one seriously injured without any promise or agreement by the person so making the call to pay for the services, and where the person so making the call owes no legal duty to the injured person to render assistance. In such a case the person is acting the part of a good Samaritan, and no legal obligation is incurred. In the present case, however, the plaintiff proved an agreement to pay for the services. Even though no legal liability for damages may have been incurred by the railroad company because of the accident, nevertheless a claim for damages was made possible by the accident, and the railroad company had an interest in minimizing the damages had the facts developed a liability. At least the company was not in the position of a disinterested stranger.

In the opinion of the court, the judgment of the lower court for the hospital was justified and that judgment was affirmed.—*Eunice Clinic & Hospital, Inc., v. Baldwin et al. (La.), 167 So. 868.*

Privileged Communications: Widow's Right to Waive Privilege.—Section 11494, Ohio General Code, provides in part:

> The following persons shall not testify in certain respects: . . . a physician, concerning a communication made to him by his patient in that relation, or his advice to his patient. But the . . . physician may testify (1) by express consent of the . . . patient; (2) and if the . . . patient voluntarily testifies, the . . . physician may be compelled to testify on the same subject.

The appellee's husband died from an injury allegedly sustained in the course of his employment. The appellee, as his widow, was denied benefits by the industrial commission of Ohio. She further prosecuted her claim in the court of common pleas, and to establish the claim she introduced the testimony of a physician who had attended the deceased both before and after the accident. The industrial commission objected to the admission of this testimony on the ground that it came within the purview of the privileged communications statute and that the privilege could be waived only by the patient, that the right to waive does not survive but dies with the patient. The trial court overruled this contention and subsequently gave judgment for the widow. This judgment was affirmed by the court of appeals, and the industrial commission sought a reversal in the Supreme Court of Ohio.

An injured employee, said the court, cannot hide his physical condition and draw compensation under the workmen's compensation act. He must, so long as he lives, give the medical adviser of the industrial commission opportunity to examine him and learn all that his family physician could possibly know. If his dependents make claim for death because of an occupational disease, the industrial commission can pursue his body after death and examine it, before the dependents will be permitted to participate in the state insurance fund. The workmen's compensation act has taken away the privilege the employee enjoyed under the general privileged communications statute. In the present case, the testimony of the attending physician was introduced for the purpose of proving the nature and extent of the personal injuries sustained by the employee. To entitle the widow to death benefits under the workmen's compensation act it was incumbent on her to prove that her husband died from injuries sustained by him during the course of his employment. To do so, it was necessary that she introduce testimony concerning the nature and extent of the injuries sustained by her husband and to establish causal connection between those injuries and his death. To deprive her of the right to waive the privilege accorded by the privileged communications statute would be to deny her the means of enforcing the rights given to her by the workmen's compensation act. It is inconceivable, said the court, that the legislature intended, on the one hand, to extend to the widow of an employee, whose injuries resulted in death, certain financial benefits, and, on the other hand, to place her beyond reach of such benefits by the interposition of a technical rule of evidence. The privileged communications statute must be construed, the court continued, so as to afford rather than deny to the widow the legal means available for the enforcement of the rights accruing to her under the workmen's compensation act. Furthermore, the weight of authority supports the view that the right to waive the privilege survives the patient. With this view, the court expressed itself as in accord, thereby departing from the holding in a case previously decided, *Swetland v. Miles*, 101 Ohio St. 501, 130 N. E. 22.

The court held, therefore, that the trial court did not err in permitting the attending physician to testify. The judgment of the trial court for the widow was affirmed.—*Industrial Commission of Ohio v. Warnke (Ohio), 2 N. E. (2d) 248.*

Evidence: Admissibility of Roentgenograms for Purposes of Comparison.—The plaintiff's pelvis was fractured when she was struck by an automobile driven by the defendant. She sued the defendant to recover damages and obtained judgment in the trial court. The defendant thereupon appealed to the district court of appeal, third district, California.

The defendant contended that the trial court erred in admitting in evidence, without proper foundation, a roentgenogram of a normal pelvis apparently for the purpose of comparison with a roentgenogram taken of the plaintiff's pelvis. The contention of the defendant was without merit, in the opinion of the district court of appeal. The use of skeletons, charts and diagrams is common in trials to show the normal structure of the human body and the court of appeal could not perceive why the use of roentgenograms of a normal bone arrangement may not likewise be used for illustration and comparison. The roentgenogram offered in evidence was that of the pelvis of a normal woman about the age, size and figure of the plaintiff and, in the opinion of the court, was properly admitted for the purpose of enabling the witness to explain to the jury a roentgenogram already in evidence. Finding no error, the judgment of the trial court was affirmed.—*DeMartini v. McDonnell (Calif.), 58 P. (2d) 170.*

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Birmingham, April 20-22. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery, Secretary.

American Association for the Study of Neoplastic Diseases, Philadelphia, April 9-10. Dr. E. R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.

American Association of Anatomists, Toronto, Ont., March 25-27. Dr. George W. Corner, 260 Crittenden Blvd., Rochester, N. Y., Secretary.

American Association of Pathologists and Bacteriologists, Chicago, March 25-26. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American College of Physicians, St. Louis, April 19-23. Mr. E. R. Loveland, 4200 Pine St., Philadelphia, Executive Secretary.

American Physiological Society, Memphis, Tenn., April 21-24. Dr. A. C. Ivy, 303 East Chicago Ave., Chicago, Secretary.

American Society for Experimental Pathology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Memphis, Tenn., April 21-24. Dr. E. M. K. Geiling, 947 East 58th St., Chicago, Secretary.

American Society of Biological Chemistry, Memphis, Tenn., April 21-24. Dr. H. A. Mattill, Chemistry Building, State University of Iowa, Iowa City, Secretary.

Arizona State Medical Association, Yuma, April 1-3. Dr. D. F. Harbridge, 15 East Monroe St., Phoenix, Secretary.

Arkansas Medical Society, Little Rock, April 12-14. Dr. W. R. Brooksher, 602 Garrison Ave., Ft. Smith, Secretary.

Federation of American Societies for Experimental Biology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.

Florida Medical Association, St. Petersburg, April 5-7. Dr. Shaler Richardson, 111 West Adams St., Jacksonville, Secretary.

South Carolina Medical Association, Columbia, April 13-15. Dr. E. A. Hines, Seneca, Secretary.

Southeastern Surgical Congress, Charlotte, N. C., March 8-10. Dr. Benjamin T. Beasley, 45 Edgewood Ave., S.E., Atlanta, Ga., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

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*Independence of Chorea and Rheumatic Activity. A. F. Coburn and Lucile V. Moore, New York.—p. 1.
Note on Duration of Symptoms and Age at Death in Chronic Rheumatic Valvular Disease, Especially in Tricuspid Stenosis. W. P. Thompson and S. A. Levine, Boston.—p. 4.
Studies in Diabetes Mellitus: V. Heredity. E. P. Joslin, Boston; L. I. Dublin and H. H. Marks, New York.—p. 8.
Gastric Juice in Patients with Pernicious Anemia in Induced Remission. S. M. Goldhamer, Ann Arbor, Mich.—p. 23.
*Leukemoid Response of Tuberculous Rabbits to Administration of Tuberculin. W. H. Feldman and J. Stasney, Rochester, Minn.—p. 28.
Plasma Cell Leukemia. B. R. Reiter and J. T. Freeman, Philadelphia. —p. 38.
*Preliminary Pain in Coronary Thrombosis. H. Feil, Cleveland.—p. 42.
Infections with Pneumococcus Type VII. M. Finland, Boston; J. M. Ruegsegger, Cincinnati; H. F. Dowling, Washington, D. C., and R. C. Tilghman, Baltimore.—p. 48.
Clinical and Immunologic Observations in Cases of Pneumococcus Type VII Pneumonia Treated with Concentrated Type-Specific Antibody. M. Finland, Boston; R. C. Tilghman, Baltimore; J. M. Ruegsegger, Cincinnati, and H. F. Dowling, Washington, D. C.—p. 59.
Agenesis of Lung: Review of Literature and Report of Case. S. Hurwitz and H. B. Stephens, San Francisco.—p. 81.
Clinical Significance of Effects of Posture on Blood Pressure: Postural Test as Means of Classifying Hypotension. C. H. Lutterloh, Hot Springs, Ark.—p. 87.
Chronic Meningococcic Septicemia. E. Appelbaum, New York.—p. 96.

Chorea and Rheumatic Activity.—Coburn and Moore made a study of the incidence of chorea in relation to rheumatic activity. The material consisted of 114 patients with chorea who have been seen once a month in the rheumatic clinic for from two to ten years and 137 consecutive admissions to the Babies Hospital for chorea. In the rheumatic clinic group, thirty-four of 114 patients with chorea failed to develop any evidence of rheumatic activity other than repeated chorea. In the Babies Hospital group, sixty-nine attacks of chorea occurred in patients without either history or stigmas of rheumatic disease. The other sixty-eight attacks of chorea were in patients who had shown other rheumatic manifestations. However, twenty-nine of these sixty-eight attacks occurred when the rheumatic process appeared quiescent. The remaining thirty-nine attacks of chorea were accompanied by frank manifestations of rheumatic activity. All of which indicates that one half of all cases of chorea in New York may occur in individuals who are not susceptible to rheumatic fever. Choreic children of this type developed no stigmas of rheumatic disease, although each experienced from one to five attacks of chorea. These individuals did not have a familial history of rheumatic fever. Their attacks were not preceded by respiratory infections but seemed to be associated with psychic trauma. Their blood sedimentation rates and leukocytic counts were usually normal.

Leukemoid Response of Tuberculous Rabbits to Tuberculin.—To obtain experimentally a leukocytic response comparable to the so-called leukemoid reaction described as occasionally associated with tuberculosis in human beings, Feldman and Stasney observed eleven tuberculous rabbits. The hematologic observations were restricted to the quantitative and qualitative characteristics of the leukocytes. The results indicate quite definitely that tuberculin given to sensitized rabbits provokes an elevation of the leukocyte count, which is often of striking proportions. This increase is predominantly granulocytic and there occurs a marked shift to the left. The definite hyperplasia of the bone marrow, mitosis of the immature myeloid cells of the peripheral blood and other significant changes suggest a condition similar to the "leukemoid" reaction. The monocytes participate in the leukocytosis rather insignificantly, whereas the lymphocytes show a definite tendency to diminish in number during the reaction that follows the administration of tuberculin. Tuberculin given to nontuberculous rabbits has no significant effect on the leukocyte count.

Preliminary Pain in Coronary Thrombosis.—Feil believes that in about 50 per cent of patients the attack of coronary thrombosis is preceded by angina, unrelated to effort or emotion. He has seen fifteen cases with substernal pain preceding the onset of the severe symptoms by hours or days. Substernal or epigastric (rarely precordial) pain is complained of—mild, not related to effort or emotional strain, not severe enough to confine the patient to bed and often not severe enough to lead the patient to consult a physician. This pain is more or less constant, is of a burning and oppressive character and is not relieved by rest or by nitrites. The pain lasts from a few hours to four weeks. If the physician is consulted, he finds no change in the objective symptoms—the blood pressure is unaltered and there is no fever or leukocytosis. The heart sounds are unchanged. After a variable period of preliminary pain, the clinical picture of acute coronary thrombosis suddenly makes its appearance and with it the typical electrocardiographic changes. This preliminary pain occurred in approximately 50 per cent of the cases of coronary thrombosis observed in the last two years. The nature of the preliminary pains was suspected in three of the fifteen cases.

American Journal of Physiology, Baltimore

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Transient Hypertension in Rats Following Extravascular Administration of Fluid. J. Q. Griffith Jr., W. A. Jeffers and M. A. Lindauer, with technical assistance of R. Campbell and F. Jankuskas, Philadelphia.—p. 1.
Movements of Eyes When Lids Are Closed. W. O. Fenn and J. B. Hursh, Rochester, N. Y.—p. 8.
Tone in Mammalian Ventricle. V. Johnson and L. N. Katz, Chicago. —p. 26.
*Alleged Validity of Coronary Sinus Outflow as Criterion of Coronary Reactions. J. R. Johnson and C. J. Wiggers, Cleveland.—p. 38.
Study of Secretory Nerves of, and Action of Certain Drugs on, the Prostate Gland. J. I. Farrell and Y. Lyman, Chicago.—p. 64.
Cardiac Changes During Progressive Hypothermia. J. B. Hamilton, M. Dresbach and Ruth S. Hamilton, Albany, N. Y.—p. 71.
Maintenance of Adrenalectomized Dogs Without Cortin, Through Control of Mineral Constituents of Diet. W. D. Allers and E. C. Kendall, Rochester, Minn.—p. 87.
Methods of Collecting Fluid from Known Regions of Renal Tubules of Amphibia and of Perfusing Lumen of Single Tubule. A. N. Richards and A. M. Walker, Philadelphia.—p. 111.
Site of Acidification of Urine Within Renal Tubule in Amphibia. H. Montgomery, Philadelphia, and J. A. Pierce, Baltimore.—p. 144.
Mechanism of Convulsions in Insulin Hypoglycemia: Interrelationship of Blood Concentration, Cerebrospinal Pressure and Convulsions. D. L. Drabkin and I. S. Ravdin, Philadelphia.—p. 174.
Influence of Adrenalectomy on Ketosis of Fasting and on Action of Anterior Pituitary Ketogenic Principle. E. M. MacKay and R. H. Barnes, La Jolla, Calif.—p. 184.
Carbohydrate Storage and Maintenance in Hypophysectomized Rat. Jane A. Russell and L. L. Bennett, Berkeley, Calif.—p. 196.

Coronary Sinus Outflow as Criterion of Coronary Reactions.—By recording the velocity of coronary sinus flow, returned at once to the superior vena cava, and by calculating the flow per beat and per minute, Johnson and Wiggers observed that the coronary sinus normally empties into the atrium only during systole, that increasing the right ventricular pressure by compression of the pulmonary artery—the heart rate and aortic pressures remaining the same—causes a proportional augmentation of coronary sinus flow, and that the increase in minute flow following only slight elevation of systolic right ventricular pressure is of the same order of magnitude as that frequently reported from stimulation of cardiac nerves or actions of drugs. They present a theory, supported by experiments, that the division of coronary return flow between coronary sinus and thebesian veins is determined not only by the anatomic resistance of these respective paths but by the height to which right ventricular pressure rises during each systole. This accounts for the proportionally larger flow from the coronary sinus in normally beating hearts and the greater drainage by thebesian vessels in dead hearts. It proves that a greater coronary sinus flow can occur through secondary increase in right ventricular pressure alone. Inferences regarding vasomotor actions in the coronary system based on alterations in coronary sinus outflow cannot be accepted as crucial unless it is demonstrated that right ventricular systolic pressure remains unchanged.

American Review of Tuberculosis, New York

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Brief Comparison of Tuberculosis in the White, Indian and Negro Races. E. R. Long, Philadelphia.—p. 1.
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Tuberculosis Among Negroes in the United States. P. P. McCain, Sanatorium, N. C.—p. 25.
Tuberculosis and Bush Negroes of Dutch Guiana: Tuberculin Survey of Inhabitants of Tapanahoni River Region. M. C. Kahn, New York. —p. 36.
Brief Comment on Race and Tuberculosis. M. Pinner, Oneonta, N. Y. —p. 41.
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Results of Surgical Treatment of Pulmonary Tuberculosis in the Negro. L. Fisher, Mansfield, Ohio.—p. 62.
Pregnancy and Parturition During Course of Bilateral Artificial Pneumothorax: Report of Successfully Delivered Case. A. Peters and L. F. Davenport, Waltham, Mass.—p. 71.
*Blood Studies in Selection of Cases of Pulmonary Tuberculosis for Thoracoplasty. Gulli Limth Muller, Rutland, Mass.—p. 83.
Thoracotome and Accessory Instruments for Severance of Intrapleural Adhesions Through Single Cannula. J. W. Cutler, Philadelphia.—p. 99.
Spontaneous Hemopneumothorax: Report of Six and One-Half Year Follow Up of Case. A. T. Milhorat, New York.—p. 106.
Tuberculous Laryngitis: Basis of Its Symptoms and Treatment. B. T. McMahon, Loomis, N. Y.—p. 109.
Nervous Disorders Associated with Pulmonary Tuberculosis. K. Schäffle, Asheville, N. C.—p. 117.
Composite Blood Chart as an Aid in Control of Treatment of Tuberculosis. H. C. Sweany, Ingrid Strom and Wilma Cannemeyer, Chicago.—p. 129.
Tolerance Tests with Ferric Chloride on Advanced Tuberculosis Patients. V. Menkin, Boston.—p. 134.
Multiple Calcification. P. D. Crimm and J. W. Strayer, Lafayette, Ind. —p. 143.

Blood Studies in Tuberculosis Before and After Thoracoplasty.—Muller analyzed and correlated blood studies, including the corrected sedimentation rate and leukocytic counts, to various factors in forty-seven cases of pulmonary tuberculosis, prior to thoracoplasty and six months after the operation. Patients with a favorable leukocytic index and with a normal or practically normal sedimentation rate before a thoracoplasty are likely to respond well to the operation. Patients with marked activity of the disease process, as revealed by the leukocytic index and the sedimentation rate, likewise respond well if the trend of the blood, as revealed by serial examinations, indicates progressive improvement before the operation. Patients who shortly before the operation show an increase in the sedimentation rate and the leukocytic index and a neutrophilic shift to the left on serial examinations do not derive the expected benefit from the operation and some are made definitely worse. More reliable information is obtained by evaluating all factors combined than by the consideration of a single factor alone.

Annals of Surgery, Philadelphia

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Perforated Peptic Ulcer in Meckel's Diverticulum: Report of Case Occurring Intramesenteric. J. E. Thompson, New York.—p. 44.
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Drainage of the Abdomen. J. E. Jennings, Brooklyn.—p. 67.
*Experimental Studies in Carotid-Jugular Anastomosis, with Especial Reference to Rôle of Carotid Sinus. A. H. Blakemore, G. H. Humphreys and B. G. King, New York.—p. 74.
Treatment of Tetanus with Antitoxin: Analysis of Outcome in 642 Cases. R. W. Huntington Jr., St. Louis; W. R. Thompson, New Haven, Conn., and H. H. Gordon, New York.—p. 93.
Acute Suppurative Tenosynovitis of Flexor Tendon Sheaths of Hand: Review of 125 Cases. R. S. Grinnell, New York.—p. 97.
*Prophylactic Foot Treatment in Patients with Diabetes Mellitus: Analyses of Its Effect on Prevention of Infection of Lower Extremities and Operative Prognosis in Series of 576 Cases. H. Brandaleone, S. Standard and Elaine P. Ralli, New York.—p. 120.
Adamantinoma of the Jaw. R. H. Ivy and L. Curtis, Philadelphia.—p. 125.
Ununited Fractures of Shaft of Humerus. W. C. Campbell, Memphis, Tenn.—p. 135.

Experimental Studies in Carotid-Jugular Anastomosis.—The phenomena that Blakemore and his associates observed following anastomosis of the carotid artery to the jugular vein in dogs resembled those reported by previous workers following both experimental and clinical arteriovenous communications between other vessels: there was dilatation of the arteries between the fistula and the heart, the heart was both dilated and hypertrophied and the cardiac output was increased greatly. These phenomena differed from those previously reported in the greater degree of the changes in proportion to the size of the fistula and in the fact that hypertension ensued. These differences can be explained by the more direct effects on the carotid sinuses of carotid-jugular fistulas than of fistulas between other arteries and veins. In view of these effects, the production of a carotid-jugular fistula as a therapeutic procedure seems ill advised in any case, is contraindicated in degenerative diseases of the aorta and is dangerous in cases with cardiac damage.

Prophylactic Foot Treatment in Diabetes Mellitus.—By comparing a group of diabetic patients whose foot ailments were attended to with a group that had no such care Brandaleone and his colleagues find that, in the group in which neither the diabetes nor the feet had been treated, 41.6 per cent required amputation and 38.4 per cent of these patients died. In their clinic group prior to prophylactic foot care, 32.4 per cent required amputation and 8.8 per cent died. Previous control of the diabetes improves the prognosis in a patient with infection of the feet, but, if prophylactic care of the feet is carried out systematically at the same time, the prognosis is improved greatly. Care of the diabetes alone improved the prognosis 77 per cent; when prophylactic foot care was added to this, prognosis improved 90.5 per cent. The major portion of infections occurred between the ages of 50 and 70. There was a definite rise in infections after 40 years of age. The large and small toes were involved almost equally. The care of diabetic patients should include prophylactic foot treatment as a routine part of the treatment. This involves the recognition of vascular inadequacies of the extremities and their dangers to the patient and should always be under the supervision of a physician. The most frequent cause of infection of the feet in these patients is improper shoes. This superimposed on arteriosclerosis, which undoubtedly exists in patients of the age group most frequently involved, is too much for the resistance of a patient with diabetes mellitus.

Archives of Internal Medicine, Chicago

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Brittle Bones and Blue Scleras in Five Generations. R. G. Hills and S. McLanahan, Baltimore.—p. 41.
Diverticulum of Pericardium. E. H. Cushing, Cleveland.—p. 56.
*Pathogenesis of Erythema Nodosum, with Especial Reference to Tuberculosis, Streptococcic Infection and Rheumatic Fever. W. W. Spink, Boston.—p. 65.
Essential Thrombophilia: Report of Five Cases. K. K. Nygaard and G. E. Brown, Rochester, Minn.—p. 82.
Reversible Autohemagglutination with Peripheral Vascular Symptoms. R. P. McCombs, Abington, Pa., and J. S. McElroy, Indianapolis.—p. 107.
Salmonella Suipestifer Infection in Human Beings: Review of Literature and Report of Twenty-One New Cases. A. M. Harvey, Baltimore.—p. 118.
Treatment of Essential Hypertension with Depressor Substance Prepared from the Urine. F. R. Nuzum, A. H. Elliot and F. Bischoff, Santa Barbara, Calif.—p. 136.

Development of Tuberculosis in Adult Life.—In schools of nursing and medicine where the students come in contact with tuberculous patients, in the absence of an adequate technic for dealing with contagious disease there has in recent years been presented an opportunity to study the development of tuberculosis in young adults that is rarely equaled by animal experimentation. Since 1927 Myers and his associates have seen many students of nursing and medicine become contaminated with tubercle bacilli for the first time, the evidence of this contamination being a positive reaction to tuberculin which appeared after the student was exposed to tuberculous patients. In many of these students there has been no other manifestation of tuberculosis as yet. They are classified as having the first infection type of disease somewhere in their bodies, with the location undetermined. Among this group they have observed subjects in whom, after the tissues had become sensitized, lesions developed in such locations or to such an extent that

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they could be demonstrated by roentgenograms or other phases of the examination. These subjects are grouped on the basis of the tuberculin reaction, the type of lesion that subsequently developed and other factors. In their experience adults in whom the first infection type of tuberculosis develops, even with considerable involvement of the pulmonary parenchyma and regional lymph nodes, do not require treatment in any form. The prevention of tuberculosis of the first infection type among young adults consists in protecting them against exposure to patients with communicable tuberculosis. For students of nursing and medicine this amounts to a strict technic for dealing with contagious diseases. When the first infection type of disease occurs in the second and third decades of life, it is just as benign as when it occurs in childhood.

Pathogenesis of Erythema Nodosum.—Spink gives data which indicate a causal relationship between Streptococcus haemolyticus and erythema nodosum: In five of the ten patients that he observed, erythema nodosum was preceded by a sore throat, and cultures in four cases revealed Streptococcus haemolyticus of the beta type; intradermal injection of a streptococcus endotoxin (nucleoprotein) produced nodules similar to the lesions of erythema nodosum in eight of the ten patients; excised streptococcic nodules and the lesions of erythema nodosum showed the same histologic appearance, and similar lesions were produced by the injection of broth filtrates of streptococci isolated from two of the patients. The same picture has been produced by the injection of tuberculin. An analysis of the records of 133 patients treated for erythema nodosum at the Boston City Hospital from 1924 to 1934 revealed a similar causal relationship to streptococcic infections and, in addition, to rheumatic fever. Erythema nodosum appears to be a nonspecific inflammatory reaction of the skin to a variety of bacterial, toxic and chemical agents.

Archives of Surgery, Chicago

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*Subungual Neuromyo-Arterial Glomus Tumor of Toe: Effect of Increased Peripheral Temperature. F. V. Theis, Chicago.—p. 1.
*Hemangioma of Tendon or Tendon Sheath: Report of Case with Study of Twenty-Four Cases from Literature. H. N. Harkins, Chicago.—p. 12.
Platyspondyly. J. Buchman, New York.—p. 23.
Streptococcus Haemolyticus Bacteremia: Study of 168 Cases. G. Shwartzman and J. L. Goldman, New York.—p. 82.
*Late Effects of Various Types of Trauma to Kidney. J. A. C. Colston and W. W. Baker, Baltimore.—p. 99.
Traumatic Rupture of Thoracic Duct with Bilateral Chylothorax and Chylous Ascites: New Operation; Report of Case. A. L. Brown, San Francisco.—p. 120.
Intra-Abdominal Adhesions: Experimental and Clinical Study. L. M. Bogart, Flint, Mich.—p. 129.
Differential Analysis of Bile Acids in Human Bile from Fistulas. H. Doubilet and R. Colp, New York.—p. 149.
A Review of Urologic Surgery. A. J. Scholl, Los Angeles; F. Hinman, San Francisco; A. von Lichtenberg, Berlin, Germany; A. B. Hepler, Seattle; R. Gutierrez, New York; G. J. Thompson, J. T. Priestley, Rochester, Minn., and V. J. O'Conor, Chicago.—p. 174.

Subungual Neuromyo-Arterial Glomus Tumor of Toe.—Theis cites a case of senile arteriosclerotic circulatory disease in which normal thermocouple temperature readings followed treatments with alternating positive and negative pressure. After complete relief was obtained from the subjective symptoms, an excruciatingly painful and tender bluish pea-sized tumor was discovered protruding from beneath the right first toe-nail. This nodule had not been noticed previously. Histologic examination of the tumor confirmed the diagnosis of a subungual glomus tumor. In a review of more than 1,400 reported cases of peripheral circulatory disease in which alternating positive and negative pressure therapy was employed, no other glomus tumor was found.

Hemangioma of Tendon or Tendon Sheath.—On the basis of a review of all types of tumor of a tendon, Harkins concludes that hemangiomas of a tendon or tendon sheath comprise only a small proportion of tumors of such origin. His study of twenty-four such cases, including a personal case, reveals that in nineteen instances in which the sex was stated there were twelve women and seven men. The side on which the tumor occurred was stated in eighteen instances, the left being involved ten times and the right eight times. This does not indicate the marked preponderance of left-sided involvement mentioned by Burman and Milgram. The upper extremity was involved thirteen times and the lower seven times. This is in opposition to the selective localization of hemangioma of the muscle in the lower extremity, as noted by Jenkins and Delaney. Observation of change in size on elevation and depression of the limb and after application of a constrictor is of importance in the diagnosis. Roentgen examination, as in the case of hemangioma of the muscle, will often reveal multiple calcified phleboliths. Positive results in this regard were reported in five of the twenty-four cases, as well as in Bouquet's case of hemangioma of a muscular aponeurosis. In only one instance were no phleboliths found on roentgen examination. Pathologic examination, as in the case of hemangioma elsewhere in the body, cannot always clearly differentiate between the predominance of endothelial, of fibrous and of hemangiomatous involvement. Likewise, the line of demarcation between lymphangioma and hemangioma and also between capillary and cavernous hemangioma must often be arbitrary. Three definite recurrences are mentioned, as well as two instances in which the operative removal was possibly not complete. Surgical treatment seems to be fairly efficacious, although many of the reported cases were not followed long enough to rule out recurrence.

Effects of Trauma to Kidney.—Colston and Baker discuss a series of thirteen cases, in all of which clinical examination or operation has revealed definite pathologic changes either in the kidney or in the perirenal tissue. The patients had been severely injured in the region of the kidney, at varying intervals of time before the patient was seen. The definite relationship of the trauma to the conditions described in these cases has been established, the conditions encountered varying from those causing minimal disability to those causing complete incapacity. The surgeon should be completely familiar with what changes may occur in the kidney or perirenal tissue as a late result of the injuries and should take the proper steps to prevent their development. All patients in whom injury to the kidney is suspected should be studied with special reference to the demonstration of persistent perirenal extravasation. It should be easily recognized by a palpable mass or the obliteration of the outline of the kidney and shadow of the psoas muscle on roentgen examination. In patients in whom hematuria has occurred as a result of an accident, an injury to the pelvis or calices should be suspected, and subsequent pyelographic studies should be carried out to make certain that distortion or particularly obstruction has not occurred as a result of the formation of scar tissue that may lead to subsequent serious damage to the kidney.

Canadian Public Health Journal, Toronto

27: 529-580 (Nov.) 1936

Staphylococcus Toxin, Toxoid and Antitoxin. C. E. Dolman, Vancouver, B. C., and J. S. Kitching, Toronto.—p. 529.
Coordination of Medical Practice with Public Health in Manitoba, Saskatchewan and Alberta: The Outlook in Health Preservation Through Properly Supervised Medical Service. F. W. Jackson, Winnipeg, Manit.—p. 536.
The Use of the Profession in Part Time Health Activities. R. O. Davison, Regina, Sask.—p. 542.
Provision of Medical Clinics for People by Provincial Department of Health. M. R. Bow, Edmonton, Alta.—p. 546.
Control of Efficiency of Pasteurization of Milk: The Phosphatase Test. H. D. Kay, Reading, England.—p. 551.
Survey of Pasteurization in Canada with Record of Epidemics Due to Raw Milk. R. H. Murray, Regina, Sask.—p. 555.
Bacillus Alkalescens (Andrewes): Its Relation to Members of Typhoid Dysentery Group. M. H. Brown and E. A. Anderson, Toronto.—p. 560.
Ensuring Safety of BCG Vaccine by Animal Inoculation. A. Frappier and Victorien Fredette, Montreal.—p. 563.

Colorado Medicine, Denver

34: 1-72 (Jan.) 1937

*Anxiety Syndrome: Everyday Problem of General Medicine Frequently Confused with Hyperthyroidism. E. G. Billings, Denver.—p. 14.
Diagnosis and Treatment of Peripheral Vascular Disease. A. W. Metcalf, J. R. Plank and F. J. Ritterspach, Denver.—p. 20.
Surgical Indications for Sympathectomy. M. C. Jobe, Denver.—p. 26.

Anxiety Syndrome Confused with Hyperthyroidism.—Billings asserts that, during the last two years, one out of every twenty-one of the new adult admissions to the Colorado General Hospital and Dispensary was referred to the psy-

chiatrist for diagnosis and treatment. At least 45.5 per cent of the so-called functional cases were incorrectly diagnosed and unsuccessfully treated as cases of hyperthyroidism. The anxiety syndrome occurs in an individual who is tense and uneasy and is characterized by rather suddenly occurring, transient attacks lasting from a few seconds to an hour, during which the patient subjectively experiences difficulty in breathing, palpitation, precordial discomfort, perspiration or "cold sweats," vertigo, various complaints referable to the gastrointestinal tract and a feeling of weakness. With these attacks there is invariably existent an underlying and accompanying emotional factor which is best described by the term "anxiety." If the physician elicits the complete complaint, he will usually learn that the patient has difficulty in sleeping, has some anorexia, tires easily, has a "tight" pain in the head, feels slowed up or confused in his thinking, is irritable, is restless, has lost weight, has not been up to par for some time, "feels worried" without knowing what about or why, and almost always feels cold and "cannot get warm enough." The first step in therapy is the elicitation of the complete complaint of the patient. Any situational factors dominant in the production of the illness must be altered if possible, or, if impossible, the patient, through discussions, should be led either to accept the facts as they exist or to modify his attitude toward them. Practically never is one situation or one factor the whole cause of the illness. Any medication given such a patient should be accompanied by a careful and painstaking explanation that the particular medication is only a means of giving symptomatic relief. In the young and middle aged, barbital in doses of 1 grain (0.065 Gm.) morning and noon, and perhaps 2 grains (0.13 Gm.) at bedtime, will relieve the patient of considerable tension and uneasiness and thus promote clearer thinking, make less likely the occurrence of an anxiety attack, relieve the head sensations and allow for more adequate rest and sleep. In elderly patients isobutylallyl barbituric acid seems to be better tolerated. When gastro-intestinal symptoms exist, 10 drops of tincture of belladonna three times daily, liquid petrolatum and a full diet with some roughage have proved helpful. If the gastro-intestinal symptoms are due more to an atonic condition of the intestine, ergotamine tartrate in doses of 1 mg., twice daily, for a few days, often gives relief. In case of a profound and prolonged anxiety attack with a tendency of the patient to become panicky, acetylcholine bromide in a dose of 1½ grains (0.1 Gm.), given intramuscularly, may aid in ameliorating the attack and thus save the patient from panic.

Journal of Biological Chemistry, Baltimore

117: 1-428 (Jan.) 1937. Partial Index

Method for Protecting Imidazole Ring of Histidine During Certain Reactions and Its Application to Preparation of l-Amino-N-Methylhistidine. V. du Vigneaud and O. K. Behrens, Washington, D. C.—p. 27.

Coloring Matters of Grimes Golden, Jonathan and Stayman Winesap Apples. C. E. Sando, Washington, D. C.—p. 45.

Exchange of Salt and Water Between Muscle and Blood: I. Effect of Increase in Total Body Water Produced by Intravenous Injection of Isotonic Salt Solutions. A. B. Hastings and Lillian Eichelberger, Chicago.—p. 73.

Studies on Constitution of Insulin: I. Properties of Reduced Insulin Preparations. K. G. Stern and A. White, New Haven, Conn.—p. 95.

Chemistry of Lactogenic Hormone Extracts. W. H. McShan and H. E. French, Columbia, Mo.—p. 111.

Phosphoric Acid Esters from Yeast Extract: Isolation of Crystalline Calcium Salt Consisting of Equimolar Mixture of Glucosemonophosphate and Glycerophosphate. C. V. Smythe, New York.—p. 135.

Use of Iodine and Other Modifications in Van Slyke Manometric Amino Nitrogen Method. A. B. Kendrick and M. E. Hanke, Chicago.—p. 161.

Activity of Glycine in Aqueous Solution at Twenty-Five Degrees. Elizabeth R. B. Smith and P. K. Smith, New Haven, Conn.—p. 209.

Oxidation of Ascorbic Acid and Its Reduction in Vitro and in Vivo. H. Borsook, H. W. Davenport, C. E. P. Jeffreys and R. C. Warner, Pasadena, Calif.—p. 237.

Concentration of Total Cholesterol in Blood Serum. W. M. Sperry, New York.—p. 391.

Apparent Creatinine of Serum and Laked Blood Ultrafiltrates. O. H. Gaebler, with cooperation of L. DeF. Abbott Jr., Detroit.—p. 397.

Experiments on Precipitation of Creatinine Rubidium Picrate from Blood Plasma Filtrates. Jeanette Allen Behre and S. R. Benedict, New York.—p. 415.

Improvements in Methods of Hydrolysis of Protein: Shortening Time for Estimating Cystine. M. X. Sullivan and W. C. Hess, Washington, D. C.—p. 423.

Journal of Comparative Neurology, Philadelphia

65: 1-712 (Dec.) 1936

Nerve Roots and Nuclear Groups in Spinal Cord of the Pigeon. J. F. Huber, Ann Arbor, Mich.—p. 43.

Reptilian Vestibular and Cerebellar Gray with Fiber Connections. J. K. Weston, Ann Arbor, Mich.—p. 93.

Acusticolateral Centers and Cerebellum, with Fiber Connections, of Fishes. A. A. Pearson, Ann Arbor, Mich.—p. 201.

Nuclear Pattern and Fiber Connections of Noncortical Centers of Telencephalon of Rabbit (Lepus Cuniculus). M. W. Young, Ann Arbor, Mich.—p. 295.

Phylogenetic Consideration of Primary and Secondary Centers and Connections of Trigeminal Complex in Series of Vertebrates. R. T. Woodburne, Ann Arbor, Mich.—p. 403.

Phylogenetic Study of Visceral Afferent Areas Associated with Facial, Glossopharyngeal and Vagus Nerves, and Their Fiber Connections: Efferent Facial Nucleus. J. W. Barnard, Ann Arbor, Mich.—p. 503.

Telencephalon of the Bat: I. Noncortical Nuclear Masses and Certain Pertinent Fiber Connections. Tryphena Humphrey, Ann Arbor, Mich.—p. 603.

Kentucky Medical Journal, Bowling Green

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Syphilis from the Standpoint of Public Health. J. E. Paullin, Atlanta, Ga.—p. 4.

Fractures of Upper Extremities. E. W. Northcutt, Covington.—p. 8.

Intrapartum Infection Due to Bacillus Welchii: Case Report. R. F. Monroe, Louisville.—p. 10.

*Sulfur Therapy in Arthritis: Preliminary Report of Some Clinical Results. D. C. Parmenter, Harrodsburg.—p. 14.

Headache. C. L. Woodbridge, Middlesboro.—p. 24.

Coronary Occlusion. C. W. Justice, Ludlow.—p. 26.

Hypertensive Disease of the Brain. C. H. Fortune, Lexington.—p. 30.

Angina Pectoris. A. J. Schwertman, Covington.—p. 35.

Sulfur Therapy in Arthritis.—Parmenter administered a solution containing alkaline sulfides and colloidal sulfur to patients with varying types of arthritis, chiefly atrophic. The treatment resulted in complete recovery in 30 per cent of the cases, with relief of pain and reduction of joint swelling; considerable improvement in function in 58 per cent, and no improvement except perhaps in appetite, sleep and general well being in 12 per cent. The results indicate that sulfur in the form used, administered concurrently by bath and orally, has no toxic effect on the system. Rather its action is definitely detoxifying and nonirritant to a degree not true of other drugs in arthritis. It tends to normalize body metabolism and revitalize cell tissues by replenishing existing sulfur deficiencies, as demonstrated by its favorable action on blood pressure, weight and the patients' general symptomatology. Sulfur therapy seems definitely indicated in arthritis and its results, with this method of administration, have been very satisfactory. The healing action of sulfur on the kidneys was quite evident when patients had such complications incidental to the arthritis.

Medicine, Baltimore

15: 453-510 (Dec.) 1936

Influenzas of Swine and Man. R. E. Shope, Princeton, N. J.—p. 453.

Significance of Allergy in Disease. E. L. Opie, New York.—p. 489.

Michigan State Medical Society Journal, Lansing

36: 1-76 (Jan.) 1937

Endocrines in Gynecology and Obstetrics. E. Novak, Baltimore.—p. 1.

Limitations of Transurethral Resection of Prostate Gland. H. W. Plaggemeyer and C. G. Weltman, Detroit.—p. 5.

Eczema, Urticaria and Allied Dermatoses. F. Blumenthal, Eloise.—p. 9.

Hysterectomy for Fibroids: Study of Postoperative Complications. S. Gardiner and N. R. Kretzschmar, Ann Arbor.—p. 13.

Oxycephaly: Report of Two Cases with Summary of Literature. E. L. Cooper, Detroit.—p. 17.

Significance of Chronic Hoarseness. J. H. Maxwell, Ann Arbor.—p. 20.

Urethritis: Statistical Study. L. W. Hull, Detroit.—p. 25.

A Visit to Scandinavia. J. E. Davis and B. H. Larsson, Detroit.—p. 29.

*Treatment of Acute Diarrheal Disorders of Infancy and Early Childhood with Banana and Banana Powder. E. W. Brubaker, Lansing.—p. 40.

Treatment of Acute Diarrheas with Banana.—Brubaker presents the clinical aspects of banana therapy in the treatment of fifty-six ward or outpatient cases of acute diarrheal disorders. Twenty-four control cases were treated with well recognized methods of therapy. The fifty-six patients ranged in age from 3 weeks to 7 years, the greater number being less than 2 years of age. Several types of infection were present, with rectal temperatures ranging from 98 to 104 F. and with histories of from one to fourteen days of illness prior to the treatment. The general picture is that of the usual diarrheas of infancy and early childhood, occurring during the summer

and early fall. The results indicate that banana powder or pulp may receive favorable consideration in the treatment of those intestinal upsets occurring during the summer and fall months in infants and young children. The greater percentage of success was found in the older group of children. A much greater success was had even with the youngest infants with the banana therapy than with the accepted methods of treatment. Banana pulp therapy gave even better results than the banana powder. The patients of this group were in the outpatient department and were able to be taken care of at home, which does not give one as fair a comparison as do the hospitalized groups, who were more adequately under control and observation. But this treatment is just as efficient as the banana powder therapy, if not more so.

Nebraska State Medical Journal, Lincoln

22: 1-40 (Jan.) 1937

Psychologic Factors in Medical and Surgical Conditions. W. C. Menninger, Topeka, Kan.—p. 1.
Some Surgical Problems of Thyroid Gland. N. F. Hicken, Omaha.—p. 8.
Late Results of Head Injuries. K. S. J. Hoblen, Lincoln.—p. 12.
Short Wave Diathermy Treatment of Chronic Sinusitis. O. C. Nickum, Omaha.—p. 14.
Diagnosis and Treatment of Anemia: VIII. Anemias of Infancy. J. C. Sharpe, Omaha.—p. 16.
The Healing Arts. C. Johnsbn, Lincoln.—p. 18.
Scurvy in Twins: Report of Cases. F. Clarke and C. W. Byrnes, Omaha.—p. 21.
Severe Burn, with Especial Reference to Tannic Acid Treatment: Case Report. S. M. Weyer, Omaha.—p. 23.
Bronchoscopic Diagnosis of Carcinoma of Lung: Report of Two Cases. H. E. Kully, Lincoln.—p. 25.

New England Journal of Medicine, Boston

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Cesarean Section: Ten Year Study of 703 Cases at the Boston City Hospital. C. J. Duncan, Brookline, Mass., and J. B. Doyle, Boston.—p. 1.
Trichinella Antigen: Further Observations on Its Use in Diagnosis of Trichinosis. W. W. Spink, Boston.—p. 5.
Psychiatric Work in the Hygiene Department of Harvard University. K. J. Tillotson, Waverley, Mass.—p. 9.
*Gentian Violet Treatment of Leg Ulcers: Preliminary Report. F. M. Thurmon and H. Chaimson, Boston.—p. 11.
Suggestions for Bacteriology Laboratory of the Small Hospital. S. C. Dalrymple, Newton Lower Falls, Mass.—p. 15.
Religion in Medicine. J. M. T. Finney, Baltimore.—p. 16.
Dr. Jacob Bigelow. C. F. Painter, Boston.—p. 20.

Gentian Violet Treatment of Leg Ulcers.—Thurmon and Chaimson believe that any therapeutic measure that may be proposed for the treatment of ulcers not only should aim at correcting an impaired vascular balance but also should possess bactericidal properties and an ability to control excessive granulation and, at the same time, should not injure the tissue cells. Gentian violet in 2 per cent aqueous solution is an agent possessing these qualities. Its use as a topical application in fifteen patients with chronic leg ulcers forms the basis of the authors' study begun Jan. 11, 1934. A topical application of the solution was applied from three to five times the first day, the patient being instructed to repeat this procedure through the following two or three days or until a hard, firm, dry, adherent crust had formed. With each application the solution was permitted to air-dry and at no time were the ulcers bandaged. As long as the violet-stained crust remained firm, dry and adherent it was not disturbed. Should any portion of the crust become loose or pocketed, that portion of the crust was removed with sterile forceps and scissors, the ulceration cleansed with dry sterile gauze and gentian violet reapplied as previously directed or until a new dry crust had formed. Loosening of the crust or pocketing beneath it is usually due to a collection of thin gray purulent material beneath the crust. During the entire period of treatment each patient remained ambulatory. With the exception of the edematous type of ulceration, treatment with 2 per cent aqueous gentian violet solution resulted in progressive healing. Pain and irritation materially subsided after the third or fourth application and usually disappeared after the first two or three days. Similarly the exudate from secondary infection was controlled within a short period of time. Once a firm, dry, adherent crust had formed, no reinfection occurred. Epithelization took place satisfactorily. Complete healing of all ulcers occurred in from eight weeks to seven months. The resulting scars were thin and flexible and in some instances difficult to distinguish from the surrounding normal skin. With the edematous ulcers the results were unsuccessful until the edema was brought under control. Topical application of gentian violet during the edematous stage was ineffective, since the stain was diluted or completely washed away by the serous exudate. Whenever it was possible to control the local and surrounding edema, the gentian violet treatment was of definite aid in hastening healing.

Radiology, Syracuse, N. Y.

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Radiation Biology of Cutaneous Glands. J. Borak, Vienna, Austria, translated from the German by E. T. Leddy, Rochester, Minn.—p. 651.
Cathode Bias for Supervoltage Tube. J. E. Rose and D. H. Loughridge, Seattle.—p. 656.
Simultaneous Infra-Red Roentgen Photography: Method of Obtaining a Photograph in Total Darkness, and a Radiograph, Simultaneously, on the Same Infra-Red Plate. L. C. Massopust, Milwaukee.—p. 663.
Roentgen Aspects of Congenital Aplasia of Lung. J. F. Elward, Washington, D. C.—p. 667.
*Carbohydrate Meal Instead of Fat Meal in Cholecystography. J. L. Kestel, Waterloo, Iowa.—p. 672.
Köhler's Metatarsal Disease: Case Report. S. Hatchette, Lake Charles, La.—p. 675.
Some Physical Aspects of 650 Kilovolts Constant Potential X-Ray Apparatus at the Lincoln General Hospital. T. R. Folsom, New York.—p. 679.
Fluoroscope Attachment for Cross-Section Drawing and Localization, with Adaptation for Radiography. M. Szabados, Brooklyn.—p. 689.
Radiation Intensities of X-Ray Generators: Some Observations During Calibration of Machines for Therapy Purposes. C. E. Nurnberger, Peiping, China.—p. 696.
*Roentgenologic Study of 115 Cases of Appendectomy for So-Called Chronic Appendicitis. M. Feldman, Baltimore.—p. 699.
Lateral Roentgenography of Femoral Neck. A. B. Ferguson and F. L. Liebolt, New York.—p. 704.
Pituitary Adenomas and Differential Diagnosis. J. T. Travers, New York.—p. 708.
Roentgenologic Study of Mastoid Area. F. L. Schumacher, Pittsburgh.—p. 717.
Osteochondrosis-Osteochondritis Ischiopubica. A. A. Zeitlin, Moscow, U. S. S. R.—p. 722.
The Planeogram: Analysis and Practical Application, with Especial Reference to Mensuration of Pelvic Inlet. J. Kaufman, Brooklyn.—p. 732.
Echinococcus Cyst of Sternum. S. E. Sinberg, New York.—p. 736.
Pneumothorax Treatment of Tuberculosis: Clinical and Roentgenologic Evaluation. R. K. Childerhose, Allenwood, Pa.—p. 741.

Carbohydrate Meal Instead of Fat Meal in Cholecystography.—Believing that dextrose must have some advantages over fat, Kestel used a carbohydrate meal instead of the usual fat meal when relatively faint shadows were obtained. Two hours later a slightly smaller but considerably denser gallbladder shadow was obtained in each instance. This procedure was then adopted as a routine to replace the fat meal. In fourteen of thirty cases a heavier, smaller shadow was obtained after the carbohydrate meal. In eight cases the shadow was as intense, although reduced in size. Of the remaining eight cases, two showed little change in the shadow, in three it was smaller and fainter, and in the remaining three it had disappeared completely. In one instance a shadow was visualized after the carbohydrate meal when it had not been present before. While the results have not been perfectly uniform, it is certain that the procedure has advantages. With the smaller shadow of relatively increased density, stones or other negative shadows might be discovered when overlooked in the original roentgenogram. For a person of average weight a meal at noon devoid of fats is followed in thirty minutes by 2.5 Gm. of dye. The evening meal at 6:30, consisting largely of carbohydrates, is again followed by 2.5 Gm. of dye. Fruit juices are allowed during the first hour after either administration of the dye. The first roentgenogram is taken the following morning at 8:30 and is followed by a carbohydrate meal. This meal consists of two slices of toast with jam or jelly, a glass of orange juice, and either tea or coffee with sugar. The second and last roentgenogram is taken two hours later. Patients with faint or absent shadows are given the carbohydrate meal and it is repeated two hours later. If the patient has vomited part of the dye or developed diarrhea and the carbohydrate meal fails to intensify the shadow adequately, the cholecystograph is repeated after the intravenous administration of the dye. A second roentgenogram is again taken two hours after a carbohydrate meal. If there is any question of slight motion, another roentgenogram is taken. In the small number of cases examined by this method, no errors have been detected.

Appendectomy for So-Called Chronic Appendicitis.—During the last few years Feldman has encountered a large number of adult patients on whom an appendectomy had been performed for so-called chronic appendicitis, without relief of their symptoms. A thorough painstaking roentgen examination of the gastro-intestinal tract, gallbladder, colon and genito-urinary tract, including cystoscopic and pyelographic studies when indicated, is necessary in every case of suspected chronic appendicitis. In a study of 115 cases of so-called chronic appendicitis, following removal of the appendix, the roentgen examination revealed pathologic conditions other than in the appendix, which accounted for the gastro-intestinal disturbance. Peptic ulcers accounted for 36.5 per cent of the disorders, pathologic states of the gallbladder for 26 per cent, and the genito-urinary tract was involved in 6 per cent. The differential diagnosis of chronic appendicitis is almost impossible without the aid of roentgen studies, by which means a large number of conditions producing gastro-intestinal symptoms that closely mimic appendical disease may be ruled out. In no instance should operative measures be undertaken for chronic appendicitis until all other conditions have been eliminated. The roentgen method of investigation is of the greatest importance as an aid in the ultimate diagnosis.

Science, New York

85: 27-60 (Jan. 8) 1937

*Interrelationship of Vitamin A and Glycuronic Acid in Mucin Metabolism. I. A. Manville, Portland, Ore.—p. 44.

Vitamin A and Glycuronic Acid in Mucin Metabolism.—To throw light on the mechanism of mucus production, Manville instituted means to deplete the glycuronic acid of experimental animals. He has gained the impression that the fundamental cause of ulcerative and erosive changes in the gastro-intestinal mucosa is due to the presence in the body, from any source whatever, of toxins so constituted that for their detoxication they must be conjugated with glycuronic acid. The demands for detoxication evidently take precedence over the demands of mucin production, with the result that, when there is a sufficient accumulation of toxins, erosion and ulcers in the gastro-intestinal tract will develop. Since the conjugation of glycuronic acid and toxins occurs in the liver, any impairment in hepatic function will predispose to an earlier appearance of mucosal damage. It appears that vitamin A is involved in this mechanism. The evidence of Clausen and others that the reserves of vitamin A or its provitamin are nearly, if not entirely, exhausted in septic diseases is not to be explained entirely on the basis of impaired absorption. The fact that it does not seem probable that all the benefit derived by vitamin A deficient animals, when fed whole apple, is due to vitamin A only is further evidence in this connection.

Surgery, Gynecology and Obstetrics, Chicago

64: 1-128 (Jan.) 1937

Osteomyelitis of Bones of Hand. S. L. Koch, Chicago.—p. 1.
Small Bone Repair. K. Speed, Chicago.—p. 9.
Transformation of Gastric Ulcer into Gastric Carcinoma. J. W. Hinton and M. Trubek, New York.—p. 16.
Ectopic Ureteral Orifice: Report of Seventeen Cases in Children. M. F. Campbell, New York.—p. 22.
Treatment of Cancer of Cervix Uteri at the Rhode Island Hospital: Report of 293 Cases with Five Year Follow Up. H. C. Pitts and G. B. Waterman, Providence, R. I.—p. 30.
*Cardiac Asthma and Acute Pulmonary Edema: Complications of Nonconvulsive Toxemia of Pregnancy. H. M. Teel, D. E. Reid and A. T. Hertig, Boston.—p. 39.
*Physiologic Changes in Ureter Associated with Pregnancy: Relationship Between Atony and Dilatation of Tract. H. F. Traut, C. M. McLane and Alberta Kuder, New York.—p. 51.

Cardiac Asthma and Acute Pulmonary Edema.—Teel and his associates have observed a dramatic and dangerous syndrome, which they call "cardiac asthma," in the course of severe nonconvulsive toxemia. In these cases the toxemic patient, while at bed rest, often without previous dyspnea or signs of embarrassment of the pulmonary circulation, is seized with a severe paroxysm of dyspnea associated with extreme orthopnea, cyanosis and acute pulmonary edema. The behavior of these nonconvulsive toxemic patients suggests an explanation for the development of acute pulmonary edema in eclampsia as well. When cardiac asthma and acute pulmonary edema have occurred during the course of nonconvulsive toxemia, it may be that hypertension, coronary disease or nephritis was present before the onset of pregnancy. This has been particularly true of a number of emergency patients in whom past histories and knowledge of the blood pressure and urine observations in the early months of pregnancy were lacking. The case histories of six toxemic patients who developed this syndrome are presented. None of them had valvular heart disease. There were known past histories and prolonged subsequent observation in some, and a necropsy was obtained in one instance. Study of these cases seems to indicate that, in at least four, previous hypertension, coronary disease and nephritis were not involved and that the symptom complex of cardiac asthma and acute pulmonary edema may complicate simple acute preeclampsia. The immediate prognosis for patients who develop this syndrome is grave. If they survive delivery and the early puerperium, the ultimate outlook as regards chronic cardiovascular and renal disease seems to be good. Left ventricular failure may be an important factor in the precipitation of these attacks of "cardiac asthma" in patients with severe preeclampsia. It may also play a dominant part in the production of acute pulmonary edema in eclampsia. The fact that a number of the preeclamptic patients recovered indicates that such left ventricular failure is not necessarily an agonal phenomenon. It might be advisable as a prophylactic measure to digitalize all eclamptic patients and those patients more than 30 years of age who have severe toxemia.

Changes in Ureter in Pregnancy.—Traut and his co-workers present new evidence indicating that the physiologic dilatation of the ureter in pregnancy is not due to the weight of the pregnant uterus primarily, although this is undoubtedly a contributing factor. The characteristics of the ureteral atony are thought to be similar in many respects to that affecting the uterine musculature. It is suggested that the phenomena in the two organs may have a similar etiology which is unknown. The ureteral dilatation is roughly proportional to the degree of atony, and both appear and disappear at similar times with regard to the course of pregnancy. Dilatation and atony appear in the third month and are progressive to the seventh month of pregnancy. During the last two months there is a marked increase in motility, accompanied by a moderate decrease in the dimensions of the tract. Following delivery, atony is again marked until the third week, subsequent to which motility returns rapidly to normal levels, which are usually attained during the sixth or the seventh week post partum. Dilatation of the tract decreases progressively after delivery and reaches practically the normal values at the seventh week of the puerperium.

Texas State Journal of Medicine, Fort Worth

32: 575-638 (Jan.) 1937

Conservative Treatment of Appendical Peritonitis. A. Ochsner, New Orleans.—p. 579.
Planned Appendectomy. J. P. Barnes, Houston.—p. 584.
Treatment of Peptic Ulcer with Posterior Pituitary Extract: Preliminary Report. M. H. Metz and R. W. Lackey, Dallas.—p. 589.
Surgery in Presence of Cardiovascular Disease. W. B. Whiting and Q. B. Lee, Wichita Falls.—p. 590.
Pruritus Ani or Vulvae. G. A. Davidson, Dallas.—p. 594.
Vesicovaginal, Urethrovaginal and Vesico-Uterine Fistulas. E. W. Bertner, Houston.—p. 597.
Infectious Mononucleosis. W. L. Marr, Galveston.—p. 603.
Roentgen Therapy for Severe Asthma. C. K. Maytum and E. T. Leddy, Rochester, Minn.—p. 610.
Histologic Grading of Tumors. J. E. Robinson, Temple.—p. 612.
Obstetric Judgment. L. G. Sewall, Waco.—p. 616.
The Problem of Temperature as It Relates to Pulmonary Tuberculosis. W. F. Wagner, Sanatorium.—p. 621.

West Virginia Medical Journal, Charleston

33: 1-48 (Jan.) 1937

Head Injuries. W. R. Geraghty, Baltimore.—p. 1.
Skull Fractures. R. E. Pickett, Morgantown.—p. 3.
The Relationship of Nasal Accessory Sinus Infection to Nontuberculous Chest Involvement. A. A. Seletz, Charleston.—p. 8.
Collapse Therapy in Treatment of Pulmonary Tuberculosis. E. Watson, Salem, Va.—p. 13.
Postbronchoscopic Treatment of Vegetal Foreign Bodies in Tracheobronchial Tree, with Particular Reference to Use of Oxygen Tent. Sobisca S. Hall and H. V. Thomas, Clarksburg.—p. 16.
Gallbladder Disease. B. M. Stout, Morgantown.—p. 23.
Strides in Public Health. T. H. Blake, Charleston.—p. 25.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

20: 657-704 (Dec.) 1936

Postoperative Distress in Cases of Senile Cataract. W. H. McMullen.—p. 657.
The Optic Foramen. J. G. Clegg.—p. 667.
Industrial Eye Injuries and Their Prevention. J. Minton.—p. 673.
A New Eye Shield for Use in Industry. C. G. Kay Sharp.—p. 683.
Sulfur Metabolism in Senile Cataract. Margherita Cotonio Bourne and Dorothy Adams Campbell.—p. 684.

British Medical Journal, London

2: 1179-1242 (Dec. 12) 1936

Amnesia: Component Functions in Remembering. R. D. Gillespie.—p. 1179.
*Cirsoid Aneurysm of Scalp. T. Clunie.—p. 1183.
*Blood Transfusion: Report of Six Fatalities. N. S. Plummer.—p. 1186.
Estrin and Progestin in Secondary Amenorrhea. S. M. Davidson.—p. 1190.
The Problem of Otosclerosis. G. Chubb.—p. 1192.
*Estimation of Coagulation Time of Blood: Simplified Method. H. Trought and J. W. Riddoch.—p. 1194.

Cirsoid Aneurysm of Scalp.—Clunie points out that the etiology of cirsoid aneurysm of the scalp does not appear to have been settled. An attractive theory is that cirsoid and racemose aneurysm, the aneurysm of anastomosis and the pulsating angioma are due, as is arteriovenous aneurysm, to an abnormal communication between the arterial and venous systems and that such a communication may be either developmental or traumatic in origin. Even large cirsoid aneurysms of the scalp may be extirpated by a method which depends for its success on the easy stripping of thromboscd and edematous tissue, including the aneurysm, from the skin layer of the scalp flap. Despite the fact that the vascular layer is stripped from the flap with the aneurysm, the skin flap receives sufficient nourishment and but little sloughing takes place even with a large flap. In the case described the whole aneurysm was excised. Searby, dealing with a larger aneurysm, excised only two thirds of it and the results were excellent, because the abnormal communication between the arterial and venous systems was abolished. An interval of ninety-six hours between the two stages of the operation should not be exceeded, as necrosis of the flap edges might occur. The operation should not be a formidable one in practiced hands, despite the vascularity of the scalp; hemorrhage will naturally be greater and the operation time will be longer if aneurysmal tissue has to be cut through.

Blood Transfusion.—Plummer stresses the risks of transfusion that are dependent on the condition of the recipient. He reports six fatal cases: 1. A case of Addison's anemia in which pulmonary edema developed after transfusion and death occurred in ten hours. 2. In a case of gastric carcinoma with moderate anemia, death took place nineteen hours after transfusion. 3. In a man of 72 with multiple telangiectases and severe anemia, death occurred four hours after transfusion. 4. The fourth case was one of hemolytic anemia with mitral stenosis. After transfusion, pulmonary edema developed and death ensued in two hours. 5. Death occurred in half an hour in a case of chronic empyema after a second transfusion from the same donor. 6. The last case was one of esophageal ulcer with secondary anemia. The patient had had five previous transfusions with a hemolytic reaction and died four days later from uremia. Doubt is cast on the accepted theory of hemoglobin plugging of the tubules in all cases of uremia following transfusion. With all ordinary precautions of grouping and selection of cases, blood transfusion carried with it a risk which indicates that it has to be used with considerable discretion in a number of conditions.

Estimation of Coagulation Time of Blood.—In estimating the coagulation time of blood, Trought and Riddoch need one glass tube drawn out into a capillary tube open at both ends and a filter paper divided by pencil into segments from the center for receiving the drops of blood expelled from the tube. Blood is drawn up into the capillary tube by surface tension, and at minute intervals the end is placed in a slanting direction on to the segments of the filter paper. Before coagulation the drop of blood is absorbed into the filter paper. After an interval varying from five to nine minutes for specimens of normal blood, a tiny thread of fibrin stretches out from the filter paper to the end of the capillary tube. The appearance of this thread of fibrin is taken as the coagulation time of the blood in question, and there is no possibility of mistaking the appearance of the fibrin thread in practice, so that uniform results can be easily obtained on repetition.

Clinical Journal, London

65: 481-530 (Dec.) 1936

Neuritis. W. R. Russell.—p. 481.
Fractures of External Condyle and Capitellum of Humerus. N. Roberts.—p. 484.
*Treatment of Obesity in Children. P. Mallam.—p. 491.
The Practical Use of Analgesics. H. Balme.—p. 495.
Coronary Thrombosis: Case. G. Lambert.—p. 500.
Illustrating Symptoms and Treatment of Hemophilia: Case. G. E. F. Sutton.—p. 505.
Puerperal Jaundice. J. Grant and J. H. Miller.—p. 509.

Treatment of Obesity in Children.—Mallam is convinced that dieting is the keystone to treatment in almost all cases of obesity in children, but before prescribing a system of diet a careful family history and knowledge of conditions under which the child is being reared must be obtained. Obesity beginning in childhood often gives rise to endocrine trouble later on, and when one finds a strong dominant obesity factor in the family one should always be prepared to face a more difficult task than in a purely fortuitous case arising from normal stock. Even then, however, a cure, permanent and complete, can be obtained in the majority of cases by simple measures. The treatment must be explained carefully to the child and need not be elaborate. A simple practice is to weigh and measure the child and give it a diet based on the calculated basal requirements for this particular height and size. This is merely a beginning figure, and it may be necessary either to add to or subtract from the initial starting point. The question of the fluid intake is of considerable importance. If these children are counseled to drink early in the morning and then to try not to drink at all through the day, this is often a great help in reducing weight. Appetite is largely a question of satiation and these children must be schooled to eat slowly. Salt and sugar should be cut down to a minimum. Many children appear even fatter than they are because of postural defects. Exercises devoted to training the recti abdominis and correcting any possible lordosis and to making them stretch their overloaded limbs are all valuable. Such exercises are always more effective under trained supervision and are usually better done in a class of several children. Some sort of abdominal support employed temporarily often gives considerable help. At the same time strengthening exercises are absolutely essential, for without them one must either rely on artificial means or face a serious chance of visceroptosis. If a child loses weight consistently under treatment, the treatment is being overdone. If one treats an overweight child of 10 years and at 12 the child weighs the same, one should realize that a great deal has been achieved.

East African Medical Journal, Nairobi

13: 229-262 (Nov.) 1936

Scientific Diets for African Children. A. T. Schofield.—p. 230.
Spinal Anesthesia, with Especial Reference to Its Uses in Nyasaland. H. D. Cronyn.—p. 246.
Subtertian Malaria: Some Cases with Unusual Clinical Features. R. R. Murray.—p. 250.
Atabrine in Tropical Typhus. J. H. Tennent.—p. 254.

Irish Journal of Medical Science, Dublin

No. **131**: 661-708 (Nov.) 1936

Angina Pectoris and Coronary Thrombosis. E. T. Freeman.—p. 661.

Journal of Neurology and Psychopathology, London

17: 97-192 (Oct.) 1936

Cerebrospinal Fluid in "Essential" Epilepsy. W. G. Lennox and H. H. Merritt.—p. 97.
Sensation of Vibration, with Especial Reference to Its Clinical Significance. I. Gordon.—p. 107.
Bilateral Atrophic Lobar Sclerosis Following Thrombosis of Superior Longitudinal Sinus. R. M. Norman.—p. 135.
Degrees of Automatic Action: Some Psychiatric Applications of Hughlings Jackson's Concept of "Reduction to a More Automatic Condition." M. Levin.—p. 153.

Medical Journal of Australia, Sydney

2:771-804 (Dec. 5) 1936

Placing of Long Radon Needles in Treatment of Carcinoma of Breast: Preliminary Note. J. L. Grove and W. P. Holman.—p. 771.
Infections of Upper Respiratory Tract in Children. H. M. Jay.—p. 774.
Id. R. L. T. Grant.—p. 776.
Streptococcic Infections. A. Aspinall.—p. 778.
Robert Boyle and His Influence on Scientific Medicine. A. R. Southwood.—p. 780.
*Result of Routine Use of Wassermann Test in 3,404 Patients Attending for Antenatal Care. T. D. Hughes and Charlotte Gammie.—p. 783.
Local Anesthesia in Abdominal Surgery. V. J. Kinsella.—p. 785.

Routine Wassermann Test.—From March 1933 Hughes and Gammie performed the Wassermann test on every patient as part of the routine antepartum examination, irrespective of age, parity or social position. In all, 3,404 patients were tested, 3,016 of the tests being true routine tests. The remaining 388 are from another outpatient day and are a routine test on all primiparas. Among the 3,016 patients who were submitted to a routine test the Wassermann reaction was found to be positive thirty-two times, or in 1.06 per cent of patients. When the incidence in multiparous and primiparous women is calculated, it is found that in the former it is 1.31 per cent and in the latter 0.47 per cent. A fact elicited in the investigation was the utter lack of previous history, which might have given a clue to the possibility of a positive result; in other words, if the test had not been done as a routine, but only in suggestive cases, the majority of cases would have been missed, especially in those multiparas whose previous pregnancies had been normal. That is, ten out of twenty-four multiparas with a positive Wassermann reaction had no history of miscarriage, premature labor, neonatal death or stillbirth, infection occurring apparently after the birth of the last child or not showing up in the children till a later date and thus giving a misleading history. The fact remains, however, that these cases will not be detected unless a Wassermann test is carried out as a routine procedure.

South African Medical Journal, Cape Town

10:763-798 (Nov. 28) 1936

Some Aspects of Jaw Growth. M. R. Drennan.—p. 765.
*Coronary Infarction in Young Adults. W. J. May.—p. 772.
Albuminuria. R. W. H. Welsh.—p. 775.
Balneotherapeutic Importance of Caledon Baths. H. Husserl.—p. 777.
Oral Sepsis as Cause of Paralysis of External Ocular Muscles. E. A. Seale.—p. 779.

Coronary Infarction in Young Adults.—May reports four cases (in persons aged 19, 20, 39 and 38 years) which according to clinical investigations present the symptom complex associated with coronary thrombosis. All the ordinary known causes of changes in the T wave and the like could be excluded in these cases. The one condition about which there could reasonably be some dubiety is acute rheumatic fever. None of these patients, however, fitted in with a picture of acute rheumatic fever. The argument, therefore, is advanced that the patients under discussion have on some previous occasion suffered from a rheumatic infection which has impaired the coronary circulation in certain limited areas. If the infective processes associated with rheumatism can cause sclerosis of a valve, then in view of the postmortem changes observed in rheumatic fever hearts it can be argued that such changes (venous thrombosis, periarteritis and adventitial infiltration) in a milder infection can cause sclerosis and deformity of limited areas of the coronary circulation. The analogy with the case of mitral stenosis in which the infective processes have been arrested would also explain why many of these cases show no further symptoms. It may also explain the etiology of many of the cases of coronary thrombosis occurring in the fourth and fifth decades in which it is difficult to find any other evidence of arteriosclerosis. The argument, therefore, is put forward to explain the symptom complex, as described in young persons, which in all other ways conforms to the accepted description of an attack of coronary thrombosis. Another possible explanation of these cases is the theory proposed by Leary: The presence of coronary sclerosis in young persons is due to an atherosclerosis, and these lesions arise from the entrance of lipoids into the subendothelial layer of the intima and their phagocytosis by cells referred to as lipoid cells.

Archives des Maladies de l'Appareil Digestif, Paris

26:1121-1256 (Dec.) 1936

Surgical Forms of Ascariasis. M. Guilleminet, L. Morenas and P. Magnin.—p. 1122.
*Shock as Therapeutic Measure in Treatment of Diseases of Digestive Apparatus. S. Ryss.—p. 1141.
Problem of Duodenitis. Gubergritz and E. Tchayka.—p. 1158.
Diabetes Improved During Progressive Development of Pulmonary Tuberculosis. L. Szyfman and I. Lebowicz.—p. 1172.

Shock in Treatment of Diseases of Digestive Apparatus.—Ryss states that a whole series of factors sensitize the gastric cell. They modify its process of reaction and displace the threshold of irritability quantitatively and qualitatively. In other words, they make it "allergic." Allergy provoking factors are toxic and chronic infections, heterogenous and endogenous poisons under certain favorable conditions which are the result of a chain of events: in the vegetative nervous system, nervous trophism and activity of superior nervous centers. The anaphylactic reaction is primarily a cellular process; proteolysis, colloidoclasis in the plasma and in the tissues and also nervous disorders assume an important rôle. The author states that 65.5 per cent of the gastric and duodenal ulcers are of an allergic nature. There exists a local allergy of the gastric tissues. If the tissue is hyperergic, the pathologic reaction manifests itself in the shape of an inflammation which may have the characteristics and, as a nosologic unit, the symptoms of purely mechanical factors. Certain forms of enterocolitis are likewise of an allergic nature. The intestinal inflammation presents itself as mucous catarrh, fibrinous, necrotic and ulcerous forms (processes of fermentation or putrefaction). These disturbances modify the intestinal milieu, its bacterial flora and the antigenic properties of its bacteria and protozoa. In treating allergic disorders of the digestive tract the author uses the shock therapy by means of hemoprotein. However, the shock does not always communicate to the organism an immunity and a permanent desensitization. The shock therapy acts on the injured cell by bringing forth a hyperergic inflammation ending in cicatrization. The choice of the antigen is regarded as important, but the author fails to state his procedure in order to "obviate the repetition of the treatment." He looks forward to future treatment of allergic disturbances of the digestive tract, aware of the complexity of their pathogenesis.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

52:1653-1684 (Dec. 21) 1936. Partial Index

*Severe Nervous Accidents and Profound Disorders of Dextrose Regulation in Children. R. Debré, J. Milhit, J. Marie, D. Nachmanschn and P. de Font-Réaulx.—p. 1653.
Hematoxody: Process of Erythrocyte Disintegration with Projection of Microcinematographic Film. R. Waitz.—p. 1663.
Professional Oxycarbonemia. M. Loeper, E. Gilbrin and F. Siguier.—p. 1671.
Endogenous Oxycarbonemia. Loeper, Bioy, Gilbrin and Tonnet.—p. 1676.

Accidents of Dextrose Regulation.—Debré and his colleagues call attention to a type of nervous disorder characterized by unusual symptoms. It was observed by them in a child aged 3½ years. The child was in coma, which lasted several hours and was accompanied by abolition of the tendon reflexes and a bilateral Babinski sign. On regaining consciousness, the child was agitated, trembling and not prostrated as is a child recovering from an epileptic attack. She again entered a profound state of coma with abolition of the reflexes. The acetone odor of the breath was noted and resulted in an examination of the urine. The Legal test was strictly positive, but there was neither sugar nor acetic acid. On recovering from these nervous crises, clinical examination was totally negative. No organic disorder was demonstrated. The child was submitted to case study and examination and it was found that the trouble was due to lack of equilibrium in the dextrose regulation. This seemed to be allied to a neuro-endocrine disorder involving the nervous centers and the glands that control the harmonious metabolism of carbohydrates. It did not seem possible to explain the morbid phenomena by a single organic lesion or by deficiency in the production of a single hormone. From a practical standpoint it must be remembered that the presence of acetone and even dextrose in the urine does not indicate the treatment of an infant with insulin before

verification of the level of blood sugar. Without this precautionary measure, hypoglycemic coma might be caused, possibly with fatal results.

Presse Médicale, Paris

44: 2057-2080 (Dec. 19) 1936

*Sexual Function in Chronic Adrenal Insufficiency. G. Marañon.—p. 2057.
Alimentary Equilibrium and Vitamins. R. Lecoq.—p. 2060.
Coexistence of Two Recklinghausen Diseases in One Subject. R. Cohen and D. Douady.—p. 2063.
*Polyposis of Small Intestine. A. Mukbil Atakam.—p. 2065.

Sexual Function in Adrenal Insufficiency.—Many clinical observations have indicated that the adrenals, especially the cortex, exert a definite action on the sexual function. Marañon reports a further clinical and experimental study of this relationship. The majority of cases of Addison's disease begin after puberty; consequently it seems that the relation between the age of first menstruation and the disease cannot give important information. Nevertheless, a study of the age of onset of menstruation indicated that the puberty of women with Addison's disease begins on the average later than that of normal women. Furthermore, it was found that the proportion of cases of menstrual insufficiency in addisonian women was especially high, which fact reenforces the hypothesis of the action of the adrenal hormone on the gonadal function. A large number of women with Addison's disease were infertile in a much higher percentage than healthy women of the same age groups. The proportion of abortions among the thirty-one addisonian women was not higher than that of normal pregnant women. Pregnancy, however, in women later affected with Addison's disease was accompanied by a higher percentage of intoxications than normally. Mammary atrophy is also common in Addison's disease and furnished some evidence that the adrenal hormone exerts a stimulating effect on the breast. In the author's observations, symptoms of adrenal insufficiency did not seem to be especially aggravated during the menopause. A definite weakening of the sexual impulse in addisonian men was frequently noted. The author believes that all these facts coincide with the experimental observations made on adrenalectomized animals and previously reported clinical observations.

Polyposis of Small Intestine.—According to Mukbil Atakam, polyposis of the small intestine is encountered rarely. Acute invagination of intestine is seen most often in nurslings and is relatively easy to diagnose. The chronic form, of insidious onset, is difficult to diagnose and less dangerous but is a disease of childhood and adolescence. It is rare in nurslings. The onset is sometimes acute, with periods of quiescence. The severe pain sometimes lasts several weeks. Vomiting is usual after a meal. Sometimes there is constipation and sometimes diarrhea, and sometimes alternation of the two. The general condition is changed from day to day. Recurrences are observed, with periods of quiescence, during which the child sleeps and gives hope of cure. These periods follow one another for a duration of a month to a year. Without surgical intervention the child dies from an occlusion or an intestinal invagination. Intestinal polyposis is dangerous from all points of view and especially from the standpoint of malignant degeneration. Once diagnosed, operation is necessary. Solitary polyps should be excised. Multiple disseminated forms should be resected with the intestine. General treatment must be administered and directed especially against anemia and inanition.

Schweizerische medizinische Wochenschrift, Basel

67: 45-68 (Jan. 16) 1937

Chronic Types of Poisoning. W. Heubner.—p. 45.
Injuries on Tendons of Hand. W. Stabel.—p. 51.
*Some Experiences in Quantitative Determination of Alcohol Content of Blood. F. Schwarz.—p. 54.
*Treatment of Habitual Dorsal Luxation of First Metacarpus. K. Lenggenhager.—p. 58.

Determination of Alcohol Content of Blood.—Schwarz discusses the quantitative determination of the alcohol content of the blood and its significance in connection with motor vehicle accidents. In the living, it is best to examine the blood, for the results of the analysis of the urine are unreliable; however, after death, the analysis of the brain gives the most exact information about the amount of alcohol that has been taken. The objection repeatedly is made that human subjects do not react to alcohol in a uniform manner, some persons being more sensitive to it than others and the same person being more sensitive at one time than at another. Nevertheless, the reliability of a method is determined by the practical experience with it. The author evaluates the results of alcohol analyses in more than 1,000 cases and reaches the conclusion that his results dispel any doubt as to the practical value of the quantitative alcohol analysis. He maintains that, if values of less than 0.05 per cent are found, the effect of alcohol cannot be considered a causal factor, for with such a concentration of alcohol the majority of persons show no signs of an acute effect of alcohol. If the concentration is between 0.05 and 0.1 per cent, the majority of persons are still free from the signs of alcohol intoxication, but in approximately one third of the cases, particularly in women and young persons, a concentration near 0.1 per cent causes signs of alcohol intoxication. Consequently, such values do not entirely exculpate a person, nor can they alone, without attention to the clinical signs, be considered a sufficient basis for legal evidence. Alcohol concentrations between 0.1 and 0.15 per cent are accompanied by signs of alcohol intoxication in 93.7 per cent of the cases, signs of excitation predominating over paralytic manifestations. Concentrations between 0.1 and 0.15 per cent are found most frequently in cases of traffic accidents, excessive speed and neglect of safety rules, as the result of the excitation caused by alcohol, being the usual causes of such accidents. Concentrations between 0.15 and 0.2 per cent are in the majority of cases accompanied by the signs of true intoxication in that paralytic symptoms are present, but some persons are in a state of excitation, some have already impaired consciousness and a few (2.3 per cent) still appear free from the effects of alcohol. The author thinks that in concentrations of 0.2 per cent and more it may be asserted that the person in question was incapable of coping even with comparatively simple traffic problems. He emphasizes that the withdrawal of the blood specimen should be made as soon after the accident as possible.

Treatment of Habitual Dorsal Dislocation of Metacarpus.—In the case reported by Lenggenhager a man, aged 23, in a fall on the left hand sustained a hyperflexion of the carpometacarpal joint and dorsal subluxation of the first metacarpus. The first reduction was effected without great effort but the dislocation recurred and neither a plaster-of-paris splint nor a leather wristband counteracted the defect. After a surgical intervention had been rejected as useless by others, the patient came under the author's observation, who decided to resort to surgery. He exposed the capsule of the joint and found that the laxity of the formerly torn capsule was responsible for the habitual dorsal dislocation. After studying the mechanism of the dislocation on the exposed capsule, the author decided to secure the joint on both sides by means of sutures in such a manner that a dorsal dislocation of the metacarpus was made impossible. In a diagram the author shows where the sutures were fastened on the articular capsule. The skin was sutured and a volar plaster-of-paris splint was put on to immobilize the basal joint of the thumb. After six days the skin sutures were removed and after ten days the basal joint of the thumb was carefully mobilized. At the end of three weeks a small thread fistula had formed in the otherwise closed surgical wound. Five weeks after the operation the capsule suture could be pulled out and after another week the small fistula had closed. The function of the joint was almost normal and the patient was able to take up his occupation again. Examination four years later showed that the patient was free from trouble, but a slight grating was still perceptible on movement of the carpometarcarpal joint.

Clinica Chirurgica, Milan

39: 825-911 (Dec.) 1936

Myomatosis of Prostate: Pathogenic Rôle in Hypertrophy of Prostate. C. Spangaro.—p. 825.
*Experimental Mechanical Jaundice. A. De Blasi.—p. 859.
Right Abdominal Syndrome in Children and Adolescents. F. Rabboni.—p. 878.

Experimental Mechanical Jaundice.—De Blasi studied the behavior of the bleeding and coagulation time in experimental mechanical jaundice and the action of coagulants, blood transfusion and roentgen irradiations of an abdominal region on

the coagulation time. The bleeding time is almost unchanged. The coagulation time increases early and intensely. Lesions of the liver parenchyma, diminished fibrinogenesis, changes of the calcium metabolism and toxic general conditions due to absence of bile in the intestine are the causes which alone or in association induce increase of the coagulation time. The latter is not favorably modified by administration of coagulants from blood platelet extracts. It diminishes transiently by administration of calcium salts and by blood transfusion. The transient results of calcium and roentgen treatments show that they have only a substituting action. Roentgen irradiation of the liver or of the hypogastric regions shortens the coagulation time for a period longer than that induced by calcium and roentgen treatments. It seems advisable to give roentgen irradiations over a region of the abdomen in order to shorten the coagulation time in jaundice. The results of the author's experiments show that the removal of the obstacle to the passage of bile into the intestine is the causal treatment of the disturbances of coagulation in mechanical jaundice. The coagulation time returns to normal, without further changes, as soon as the passage of bile into the intestine is reestablished.

Minerva Medica, Turin

1: 1-28 (Jan. 7) 1937

Diagnosis of Multiple Myeloma by Sternal Puncture. A. Ferrata and E. Storti.—p. 1.
*Histopathologic Study of Carotid Glands. G. M. Rasario.—p. 4.

Histologic Study of Carotid Glands.—Rasario studied the histologic and nervous changes of the carotid glands on cadavers of men who died from various diseases at different ages. The carotid glands were found in all cases, regardless of age. Both glands were removed. One of the glands was subjected, after fixation, to the De Castro-Cajal silver impregnation method for the study of the ends of the nervous fibers. The other gland was stained, after fixation, for study of the cellular alterations. The latter as a rule are of lesser importance. They consist especially in proliferation of the connective tissue and small cell infiltration. Alterations of the parenchymal cells cannot be noticed (perhaps because of the early changes of the glandular parenchyma after death). Senile sclerosis of the carotid glands begins at the age of 60 and is obvious at 70, with exceptions, however, because there are cases in which the glands are well preserved after 70. There are two types of cells in the parenchyma of the carotid glands: Cells with large hypochromic nuclei exist in the glands of young persons, whereas cells with dark, round, small nuclei are present in the glands of the elderly. The structure of the specific cells of the carotid glands indicates that the glands have secretory functions which, up to the present, have not been proved. The alterations of the ends of the nervous fibers of the glands are also of lesser importance and probably do not prevent the functions of the gland. According to the author, the carotid glands are not rudimentary, accessory or involutive structures but organs with definite functions which form a part of the depressive vasosensorial system of the carotid sinus.

Policlinico, Rome

44: 153-208 (Jan. 25) 1937. Practical Section

New Therapeutic Trends in Field of Minor Surgery. A. Comolli.—p. 153.
Permeability of Capillaries in Gastrectomized Persons. S. Ciancarelli.—p. 159.
*Ascoli's Treatment in Malaria. A. M. Cicchitto.—p. 165.
New Technic for Preparation of Sheep Erythrocytes for Wassermann Reaction. A. Frates.—p. 170.
Spontaneous Amputation of Appendix: Case. G. Cardi.—p. 173.

Ascoli's Treatment in Malaria.—Cicchitto reports satisfactory results from Ascoli's treatment (intravenous injections of epinephrine) in malaria. Epinephrine is given in increasing doses of from 0.02 to 0.1 mg. The first two days it is given in association with 0.5 Gm. of quinine, in intravenous injections. An intravenous injection of epinephrine and an intramuscular injection of quinine, of the same amounts as those administered in the morning, are given at noon in severe cases for the first two days. The third morning the patient is given 0.5 Gm. of quinine by mouth and the intravenous injection of epinephrine. The noon treatments are discontinued. From the third day on, administration of quinine is discontinued. Intravenous injections of increasing doses of epinephrine are continued up to completion of six or eight injections, one every morning, besides those which are administered at noon in grave cases. The author succeeded in controlling many cases of malaria with visceral, digestive, hepatic circulatory, nervous, adrenal, sensorial and sympathetic complications. There are no recurrences or reinfections after the treatment, which has the advantages that quinine resistance is controlled, the dose of quinine given to the patient can be diminished, the disease evolutes to rapid recovery and the development of posttropical benign malaria is prevented.

Beiträge zur klinischen Chirurgie, Berlin

164: 513-672 (Dec. 23) 1936. Partial Index

Urographic Diagnosis of Renal Tumors. W. Staehler.—p. 513.
*Hereditary Character of Neurofibromatosis of von Recklinghausen. C. H. Schröder.—p. 563.
*Value of Indirect Roentgenologic Signs in the Diagnosis of Brain Tumors. H. Hellner.—p. 573.
Chondroma of Short Tubular Bones. F. Golla.—p. 613.
Amniotic and Hereditary Nature of Flatfoot. C. H. Schröder.—p. 619.
Treatment of Dislocation Fracture of Capitellum Radii. E. Mackuth.—p. 628.

Hereditary Character of Neurofibromatosis.—According to Schröder, the multiplicity of symptoms of von Recklinghausen's disease is simplified by the grouping proposed by Ferdinand Curtius, according to which all its manifestations are divided into three groups: (1) multiple skin tumors (fibromata mollusca) frequently associated with nerve tumors, (2) anomalies of pigmentation of the skin, particularly smaller or larger pigmented nevi referred to as coffee spots, and (3) psychic disturbances, particularly imbecility, more rarely psychoses and psychopathies. Among other symptoms are mentioned skeletal changes, kyphoscolioses, asymmetries of the skull, thickening or rarefaction of bones and subperiosteal cysts. The bones may undergo decalcification or an abnormal increase in calcium. Pseudarthroses are noted in childhood. Another peculiarity is a keloid-like hypertrophy of scars, while disturbances of the glands of internal secretion may lead to hypogenitalism, acromegaly, myxedema, hyperthyroidism and Addison's disease. The histologic study of the multiple tumors reveals that they are neuromas, neurofibromas or pure fibromas. The origin of these tumors is to be seen in faulty differentiation of mesenchymal tissue from the ectoderm. The embryologic origin of the disease is indicated by its hereditary character. Of the 466 cases reported in the literature, a hereditary character was present in 18 per cent of the children and in 16 per cent of the adults. The author reports an observation of a family in which the hereditary transmission of the dominant type was traced for three generations. A father and twin sisters exhibited pigment anomalies and characteristic tumors confirmed by histologic examination. Four other members of the family exhibited an abortive type of the disease in the form of typical pigmentation anomalies of the skin; namely, the so-called coffee spots. One case presented an unusual location of a tumor under the tongue. Two cases of imbecility were present in relatives. Seven of the affected persons showed similar anomalies of pigmentation, while three showed rather large single tumors. Similarity of the symptoms and of the development of the disease suggests the existence of a familial type of the disease.

Signs of Brain Tumors in Roentgenogram of Skull.—Diagnosis of brain tumors must answer three questions: the location of the tumor, the size of the tumor and its nature. According to Hellner, the usual roentgenogram of the skull is capable of contributing important information to these queries. The knowledge of the alterations caused by tumors and visualized in an ordinary roentgenogram of the skull, while not as important as the neurologic examination and the knowledge of the course of an individual tumor, is nevertheless of considerable value. The author cites Kornblum, who found in 446 cases of brain tumor confirmed by operation or at necropsy that 6.5 per cent showed calcification. The intracranial tumors exhibiting bone formation were, in the author's experience, principally parasagittal meningiomas, neurinomas and cholesteatomas. Here the roentgenogram furnishes information as to the localization, the size and, to some extent, the nature of the tumor. The author describes localized hyperostoses of the vault and the base of the skull. These were likewise observed principally in meningiomas and occasionally in benign gliomas and in neurinomas of the acoustic nerve. The roent-

genogram furnishes information as to both the localization and the nature of the tumor in the case of meningioma. Histologic studies of meningiomas characterized by a tendency to form hyperostosis demonstrated invasion of bone by tumor cells. The roentgenologic and clinical differentiation of osteoma and meningioma no longer offers serious difficulty. One must be careful in interpreting erosions and atrophies of the skull. They can be caused by general increased brain pressure as well as by the direct pressure of a tumor. They do not furnish any definite evidence of a topographic, qualitative or quantitative kind. The value of roentgenologic signs in the diagnosis of the nature of tumors of the cerebellopontile angle is limited. On the other hand, the topographic diagnosis of tumors of the acoustic nerve is, as a rule, reliable. The size of the tumor cannot be told from a roentgenogram.

Strahlentherapie, Berlin

57: 553-720 (Dec. 12) 1937. Partial Index

Short Wave Therapy in Internal Medicine. E. Schliephake.—p. 553.
Theoretical Foundations of Short Wave Therapy. F. Dessauer.—p. 582.
*Foundations and Therapeutic Results of Nearly Athermic Short Wave Therapy. P. Liebesny.—p. 615.
Further Studies on Deep Heating of Pelvic Organs in Short Wave Therapy. W. Rech and W. Raab.—p. 623.
*Experiments on Treatment of Cutaneous Cancers with Extremely Soft Roentgen Rays. E. Ebbehøj.—p. 661.
*Changes in Blood Picture and Their Prognostic Significance in Cases of Uterine Carcinoma Before and After Ray Treatment. H. Goecke.—p. 675.
Experiences with Radium Treatment of Hemangiomas. H. Aretz.—p. 682.

Short Wave Therapy Without Heat Effect.—Liebesny says that the aim of the short wave therapy recommended by him is the opposite of that of diathermy. Whereas in diathermy a more or less intense heating is desired, the athermic short wave therapy avoids heating as much as possible. The author states that short wave therapy with excessive or moderate thermic action involves dangers. He shows the picture of a necrosis that resulted in a case in which relatively high doses were administered and in which the condenser electrodes had been in direct contact with the skin. To be sure, such burns do not result when the distance method is used, which was recommended by Schliephake and by the author. It is pointed out further that, in case of high thermic action of the short waves, tissue injuries may develop also in the deeper lying organs. Athermic short wave therapy exerts a biologic action. He cites examples which prove that short waves elicit biologic actions that are the opposite of heat actions. Finally he demonstates that by athermic short wave therapy, that is, by excluding heat action as much as possible, favorable therapeutic effects can be obtained in suppurating and inflammatory processes on the surface of the body as well as in the deeper layers.

Treatment of Cutaneous Cancers with Soft Roentgen Rays.—Ebbehøj points out that the biologic reactions will be the same with any quality of gamma rays, provided the distribution of rays within the tissue is the same. He cites reasons why it is desirable to replace radium rays with roentgen rays in the treatment of cutaneous cancer and describes his own efforts with extremely soft roentgen rays. He emphasizes that the rays he uses are not the ones which are usually designated as soft roentgen rays but are "extremely" soft. They are produced with tensions of less than 30 kilovolts and are so soft that, in order to obtain a sufficient quality from the tube, it is necessary to have a so-called Lindemann window melted into the tube. Their half-layer value in aluminum varies between 0.015 and 0.2 mm. and their half-layer value in the skin varies between 0.2 and 2 mm. After citing preliminary experiments on animals and tissues, the author describes his experiences on patients. First he employed borderline rays, which were produced with 12 kilovolts and had a half-layer value in the skin of 0.3 mm. The application of 6,000 roentgens in one session proved adequate in nonmalignant cutaneous growths, but from 8,000 to 20,000 roentgens was applied in patients with cancer. This mode of treatment was employed during 1933, 1934 and 1935 in seventy-two patients with nonmalignant growths, ninety-five patients with cancer and seventeen patients with doubtful growths. It was found that 20,000 roentgens applied with a tension of 12 kilovolts cured cutaneous cancers of a depth of 1 mm. In cases in which the cancer was deeper, the top was removed with a sharp curet and the bed was irradiated. This procedure did not result in disfiguring scars. Later the author discovered that a slightly harder type of ray could be used successfully for cutaneous cancers of a depth up to 5 mm. These rays are of a quality that is determined by a tension of 25 kilovolts and a half-layer value in the skin of 1.6 mm., following filtration through 0.19 mm. of aluminum. With this type of ray, 5,600 roentgens is applied at once. This quantity can be administered in about eleven minutes. The author emphasizes that the treatment with extremely soft roentgen rays is simple, rapid and inexpensive.

Blood Picture in Uterine Carcinoma.—Goecke studied the hematic changes in 110 patients with uterine carcinoma before and after irradiation. He found that before the irradiation the reduction in the hemoglobin content is the greater, the more extensive the carcinoma. The erythrocyte values show a similar behavior. If the carcinoma is in the beginning stage, there is a slight increase in the leukocytes; if it is in a more advanced stage, the increase in leukocytes is more noticeable. During the beginning stage, this is not due to an increased production of granulocytes but rather to a stimulation of the lymphocytopoiesis. This is proved by the high numbers of lymphocytes in comparison to the slight degree of deviation to the left. In the unfavorable cases, however, the leukocytosis is a result of an increase in the neutrophilic cells. This can be deduced from the greater deviation to the left and the small number of lymphocytes. The author emphasizes that the influence of radium and roentgen rays on the blood picture in case of uterine carcinoma cannot be determined by simply comparing the blood status before and after the treatment, as has been done by other investigators, for it cannot be doubted that during the time of observation the blood picture is influenced not only by the irradiation but also by the carcinoma. Consequently, in comparing the blood changes before and after irradiation the author gave especial attention to whether the carcinoma had become improved or exacerbated in the course of the irradiation. He found that in case of exacerbation the signs of secondary anemia are greatly increased. In the white blood picture the leukocytosis increases in case of exacerbation, whereas in case of improvement the opposite behavior is observable. The author admits that, if the condition of the carcinoma is taken into consideration, it cannot be definitely stated how the irradiation has influenced the blood picture, but he considers the fact that the changes in the blood picture have a prognostic value of more importance than the demonstration of a ray effect. He concludes that the prognosis is generally favorable if after the irradiation the hemoglobin content and the erythrocyte values increase and the leukocyte numbers and the deviation to the left decrease. It is unfavorable if the blood status shows the opposite behavior.

Wiener klinische Wochenschrift, Vienna

50: 1-50 (Jan. 8) 1937. Partial Index

Occurrence of Goiter in Animals. W. Hausmann and J. Wagner-Jauregg.—p. 4.
Mountain Climate in Pediatrics. F. Hamburger.—p. 17.
High Altitude Climate and Diseases of Bronchi and of Lungs from Point of View of Atelectasis. F. Fleischner.—p. 21.
Poisonous Mushrooms and Poisonings Caused by Them. R. Wasicky.—p. 22
*Enterococcic Infections of Central Nervous System. F. J. Lang, A Lode and F. Schmuttermayer.—p. 29.

Enterococcic Infections of Central Nervous System.—A review of the literature on enterococci revealed to Lang and his associates that it records only three cases of enterococcic infections of the central nervous system. Therefore they feel justified in giving detailed reports of two cases, both of which ended in death. The enterococcic strains that were isolated from these two patients showed great similarity, such as in regard to the multiformity of shapes with predominantly pointed ends, in regard to the clouding of the bouillon and profuse growth already after twenty-four hours and in regard to the great resistance, the fermentative action and the reduction of dyestuffs in milk. In both patients enterococci were found in the cerebrospinal fluid that was withdrawn from the lumbar region and from the cistern. The enterococcic meningitis, which was deduced from the presence of the enterococci in the spinal fluid, was found to be the result of a cerebral abscess and of softening of the brain, which, in turn, had been caused by way of infection of the blood stream. A primary process produced

an infection of the blood stream, from which the infection was carried in one of the patients to the lung, kidney and brain, and in the other patient to the right cerebral hemisphere, lung, frontal sinus, skin and endocardium. Regarding the location of the primary focus, only suppositions are possible. In the first patient there were indications that it might have been in the intestine, in the second patient in the tonsil.

Polska Gazeta Lekarska, Lwów

16: 21-40 (Jan. 10) 1937

Psycho-Anaphylaxis. H. Sochański.—p. 21.
*Late Postmortem Demonstration of Carbon Monoxide. M. Pieczarkowski.—p. 24.
Immunobiologic Reaction of Rheumatism. A. Mester.—p. 27.
Allergic and Nonallergic Eczema. A. Nadel.—p. 29.

Late Postmortem Demonstration of Carbon Monoxide.—Pieczarkowski states that the literature on death by asphyxiation from illuminating gas is scanty from the medicolegal point of view of demonstrating the cause of death after exhumation of the suspected body. His experiments show that: 1. Demonstrating death from illuminating gas by means of spectral and chemical analysis of the blood and the edematous condition of the exhumed organs was easy after two months. 2. In atelectatic and decomposed parts of the body illuminating gas has been demonstrated even after two and one-half years. 3. If a vessel is filled to the top with blood poisoned by illuminating gas and is sealed air tight, the positive presence of illuminating gas may be demonstrated after twenty years (and even for a much longer time) by chemical and spectral analysis. 4. During one year illuminating gas in the blood may be demonstrated by pouring thickly and drying the blood in a porcelain dish or in a watch glass. 5. If the blood is poured in a vessel which it does not fill completely, and is sealed and shaken so that the air left in the vessel is mixed with the blood, the illuminating gas cannot be demonstrated any more after one month. 6. It can be found for twice as long (fifty-five days) when the vessel has not been shaken. 7. The blood left in an uncovered vessel shows the presence of illuminating gas for about two weeks. 8. If the blood is regularly stirred with air, the illuminating gas is lost in about five hours. 9. The blood mixed with Jäderholm's solution shows illuminating gas for only a short time.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

81: 1-96 (Jan. 2) 1937. Partial Index

Use of Liquid (Roche) in Culturing Micro-Organisms from Blood. J. Van Der Hoeden.—p. 10.
Acute Articular Disturbances in Tuberculosis. J. H. Reichart.—p. 17.
Acute Nicotine Poisoning. J. J. Jüngerhans.—p. 21.
*Parenteral Liver Therapy in Two Cases of Sinus Thrombosis. H. Engelkes.—p. 25.

Parenteral Liver Therapy in Sinus Thrombosis.—Engelkes, after citing the decrease in rapidity of the blood current and changes in the endothelium and in the blood as the factors that play a part in the pathogenesis of thrombosis, points out that several authors observed that the injection of liver extract exerts a favorable influence on the course of postoperative thrombosis and thrombophlebitis. He describes the histories of two patients with sinus thrombosis, one of whom had the "spontaneous" and one the suppurative type. In both of these patients he resorted to the intramuscular injection of liver extract, giving 2 or 3 cc. twice daily and continuing the injections for two weeks. Later the liver was given by mouth. Both patients recovered. The author concludes that in operative as well as in nonoperative cases of sinus thrombosis injections of liver extract should be given for about a week, eventually followed by oral medication.

81: 161-236 (Jan. 16) 1937. Partial Index

Chronic Intestinal Catarrh. J. Van Lookeren Campagne.—p. 165.
*Contribution to Knowledge of Phosphorus Lipoids on Basis of Study of Phosphorus Lipoid Content of Blood of Patients with Cancer. G. F. Gezelle Meerburg.—p. 170.
Simple Determination of Urea in Blood and Urine. A. C. M. Lips. p. 175.

Phosphorus Lipoids in Blood of Patients with Cancer.—Gezelle Meerburg points out that the phosphorus lipoids or phosphatides, the chief representative of which is lecithin, play an important part in the organism. He reviews the reports of other investigators, such as Marsman's study on the lipoid content of the blood of patients with tuberculosis, and then reports his own studies on twenty-nine cancer patients and on three with other chronic disorders. All the patients were rather undernourished. Tabular reports show that the values varied between 4 and 11.7 mg. per hundred cubic centimeters of blood. In the men the average value was 8.05, in the women 7.62 mg. per hundred cubic centimeters of blood. The author thinks that the undernourished condition influences the phosphatide content of the blood.

Acta Medica Scandinavica, Stockholm

91: 1-212 (Jan. 20) 1937. Partial Index

*New Blood Pressure Reducing Substance Within Organism and Its Significance for Essential Hypertension. E. Wollheim.—p. 1.
Observations on Uveoparotitis and Allied Conditions with Especial Reference to Symptoms from Nervous System. J. Waldenström.—p. 53.
*Edema of Temples in Thyrotoxicosis. J. Wahlberg.—p. 107.
Origin of Vesicular Murmur. E. Bárány.—p. 115.
Bacterial Endocarditis Caused by Hemolytic Fecal Streptococci (Enterococci). E. Waaler.—p. 121.
Ventilation in Essential Hypertension and in Anemia. P. J. Wising. p. 159.
*Disturbances of Plasma Protein Metabolism and Experiments with Bone Marrow Therapy. M. C. Ehrström.—p. 183.

Blood Pressure Reducing Substance.—Wollheim demonstrates that the urine of normal subjects and of horses contains a blood pressure reducing substance. The urine of patients with essential hypertension is either entirely free from the substance or it is present in only small quantities. The author describes the chemical and physical behavior of this thermostable substance. It is well characterized and readily differentiable from other blood pressure reducing substances by its behavior during boiling with acid and lye and toward the usual solvents and precipitants and by the use of dialysis and electrolysis. A blood pressure reducing substance that is essentially the same can be extracted from the posterior lobe of the hypophysis. The physiologic action of the substance that is extractable from the urine as well as from the posterior hypophysis consists in a considerable dilatation of the peripheral vessels. Its blood pressure reducing effect persists for comparatively long periods and in this respect it differs from all formerly known blood pressure reducing substances. Pure preparations do not influence the heart, the respiration or the intestine. The intramuscular injection of the substance reduces the blood pressure of patients with essential hypertension.

Edema of the Temples in Thyrotoxicosis.—Wahlberg describes six cases of edema of the temples in thyrotoxicosis. The edema appeared at the height of the disease or when the other symptoms were subsiding and, as a postoperative symptom, simultaneously with myxedema or during seemingly normal thyroid function. In one case it seemed to be an early symptom of the disease. He discusses the pathogenesis of the eye symptoms in thyrotoxicosis, especially the exophthalmos and the edema of the eyelids.

Disturbances in Plasma Proteins and Bone Marrow Therapy.—Ehrström points out that quantitative and qualitative changes in the plasma proteins are quite common. In infections of various types, particularly chronic suppurations, tuberculosis and syphilis, the globulins are increased. Multiple myeloma is usually accompanied by an increase in the total amount of proteins; here too the globulins are usually the chief factor. The hyperproteinemia that is due chiefly to an increase in the albumins is often present in essential hypertension. Hypoproteinemia is even more common than is an increase in the plasma proteins. In this connection the author mentions nephritis, starvation edema, pernicious anemia, myeloid leukemia, cardiac insufficiency, cirrhosis and atrophy of the liver, diarrheas and so on. He reviews what is known about the localization and the manner of production of the plasma proteins, pointing out that investigations in recent years have disclosed that changes in the plasma proteins concur with pathologic processes in certain cells of the bone marrow. After making a comparison between the plasma protein metabolism and the hemoglobin metabolism, he reports a case of hypoproteinemia, in which the plasma proteins remained practically the same during nine months of treatment with liver and a diet that had a high protein content. However, when thereafter treatment with a bone marrow extract was continued for only a month, a considerable increase was produced, which involved only the albumins.